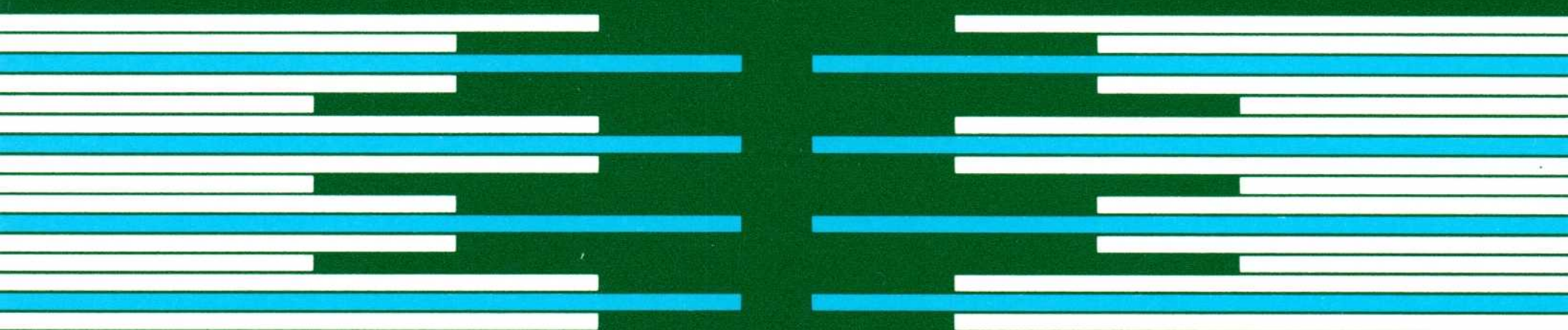


MICROSOFT® CASH PLAN

Cash Flow Analysis



For MS-DOS™

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Microsoft® Cash Plan

Cash Flow Analysis

for the MS™-DOS Operating System

User's Guide

Microsoft Corporation

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Part 1

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Learning Cash Plan

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The Learning Case is an interactive program that teaches you how to use Microsoft Cash Plan. It gives you a chance to work with the keys and commands you will need during the questioning sequence. The Learning Case is very easy to use; the screen tells you exactly what you need to know and do.

You can quit the Learning Case at any time using the Quit command. See “Quitting the Learning Case” in this section for further information.

After you have worked through the Learning Case, turn to the “Example Case,” for any of the worksheets, in Part 2 of this manual. The Example Case uses the questioning sequences in the Cash Program. See also the Example command in the “Reference Guide” section of this manual for additional information.

Starting the Learning Case

Before using the Learning Case program for the first time, read the “Getting Started” section and perform the tasks described there.

To start the Learning Case:

1. If MS-DOS is not running, insert the Learn Program disk and then start MS-DOS.

When you see the A> prompt, type:

XP LEARN

and press the RETURN key.

- 2. When the Learning Case has been loaded, the introductory screen appears. This screen and the next screen give you basic information about how to use the Multiplan applications. Press *N* to carry out the Next command. This takes you to the next screen.


Note

In the Learning Case and the questioning sequence, the Next command is usually highlighted as the proposed response.

- 3. On the third screen, the Learning Case offers you two different ways to use it. If you are using the Learning Case for the first time, proceed screen by screen.

The Learning Case program can be used two different ways.

If you have NEVER used the Learning Case before, simply press the RETURN key (see your keyboard diagram), then press the 'n' key.

If you have already been through the Learning Case and want to review the information screens or practice building a Multiplan worksheet, type 'p' →  (for Practice), press the RETURN key, then press the 'n' key.

COMMAND: Example Help Load Next Quit Review Save

Enter responses
Press tab to move to command line

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If you simply want to review or practice building worksheets, type *P*. You will see the Selective Review Menu. (For more information, turn to “The Selective Review Menu” at the end of this section.)

SELECTIVE REVIEW MENU

Place an 'x' beside the section you'd like to review

- The Screen & the Pointer —
- The Command Area —
- The Prompting Area —
- The Message Area —
- The Questioning Sequence — ☒
- No Further Review —

COMMAND: Example Help Load Next Quit Review Save

Type an 'x' beside one choice
Press tab to move to command line

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The Screen

If you continue with the Learning Case, you will see a group of screens describing what appears on your terminal as you use Cash Plan. This information is essential to understanding how Cash Plan works. Read these screens carefully, and follow the instructions to move on. The first screen will look similar to this:

The Screen (a)

The screen is a display area which allows you to enter information and commands which the application program uses to design and build Multiplan worksheets.

Each screen contains three areas:

1. The Command Line Area: Features commands that tell the program what you want it to do.
2. The Prompting Area: Poses a question or series of questions.
3. The Message Area: Tells you what action you can take next.

Press the 'n' key to learn more.

COMMAND: Example Help Load **Next** Quit Review Save

Select option or type command letter

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The Cash Plan screen contains three areas:

The Command Line Area: Lists commands you use to tell the program what you want it to do.

The Prompting Area: Poses a question or a series of questions. Often, responses to the questions are proposed by the program. The proposed response appears to the right of the question in the prompting area.

The Message Area: Tells you what to do next or displays an error message.

The Pointer

The pointer (or highlight) indicates the current question or command. On screens that display questions, the pointer appears to the right of the question. When you type a response, it appears in front of the pointer.

Several keys move the pointer: RETURN, TAB, spacebar, BACK-SPACE, and the Up and Down direction keys.

RETURN

The RETURN key moves the pointer from one response to another, and from the prompting area to the command line.

The RETURN key also enters the proposed response for the current response.

Pressing the RETURN key when the pointer is on a command carries out the command.

TAB

The TAB key jumps the pointer from the prompting area to the command line and back again.

Pressing the TAB key when the pointer is on the command line always moves the pointer to the first response.

Pressing the TAB key when the pointer is on a response enters that response and then moves the pointer to the command line.

Up, Down	<p>The Up and Down direction keys move the pointer from one response to another.</p> <p>Pressing the Up direction key when the pointer is on the command line moves the pointer up to the last response.</p> <p>Pressing the Down direction key when the pointer is on the last response returns you to the first response.</p> <p>Pressing the Up or Down direction keys when the pointer is on a response that is filled in enters that response.</p>
Spacebar	<p>The spacebar moves the pointer from one command to the next in the command line area. It can also be used to delete a response by replacing the response with blank space.</p>
BACKSPACE	<p>The BACKSPACE key erases letters in the prompting area as it backspaces over them. Use the BACKSPACE key to change the highlighted response field.</p>
DELETE	<p>Use the DELETE key to correct a response that the pointer is not highlighting.</p> <p>Use the RETURN key or the Up or Down direction keys to move the pointer to the incorrect response, and then press the DELETE key.</p> <p>DELETE erases the response.</p>

The Command Line

The command line contains the seven Multiplan application commands: Example, Help, Load, Next, Quit, Review, and Save. The next group of screens explains the Cash Plan commands in more detail. For example, the screen below tells how to use the Help command:

The Help Command (b)

Among the commands discussed on the Help explanation screens are the Load, Save, and Quit commands. These commands will not be covered elsewhere in this Learning Case, so you will want to read about them on the explanation screens.

Try using the Help command now.

When you return to this screen from the explanation screens, go on to the next screen using the Next command.

COMMAND: Example Help Load **Next** Quit Review Save

Select option or type command letter

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The Review, Example, and Help commands are described in the Learning Case. Then the Learning Case takes you into the Help file for more information on commands. For further information on commands, see the “Reference Guide” section in this manual.

The information below will explain the Multiplan application commands:

EXAMPLE (E): Displays hypothetical responses. You can build an Example Case worksheet from the displayed responses.

LOAD (L): Loads in responses you previously entered and saved with the SAVE command. You must specify the filename.

HELP (H): Displays a help screen that explains the commands.

NEXT (N): Displays the questions or information on the following screen.

QUIT (Q): Terminates the questioning sequence.

REVIEW (R): Allows you to review your responses.

SAVE (S): Saves questioning sequence responses. You must specify a filename. Filenames may contain up to 8 characters. To load the saved responses, use the LOAD command.

Press return to view remaining text

Commands tell Cash Plan what you want it to do. There are two ways to carry out commands. (In both cases, move the pointer to the command line first.)

Type the first letter of the command.

Move the highlight along the command line by pressing the spacebar or BACKSPACE key until the command you want is highlighted. Then press the RETURN key.

Entering and Editing Responses

The Learning Case also gives information that will help you complete the questioning sequence. In each case, you can practice these tasks by following the instructions on the screen.

Entering and Editing Responses

Now you are ready to find out how to answer questions in a Multiplan application program.

First you will learn how to enter and edit responses to the questions by practicing on actual questions from an application program. The topics covered in the next few screens are:

The Prompting Area

Answering Questions

Changing Answers

Use the Next command to learn about the prompting area.

COMMAND: Example Help Load **Next** Quit Review Save

Select option or type command letter

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The Prompting Area

The prompting area is the upper part of the screen. In the prompting area you will see a series of questions such as these:

WHAT IS YOUR NAME?

WHAT CITY DO YOU LIVE IN?

IN WHAT STATE IS YOUR CITY LOCATED?

Cash Plan uses your responses to these questions to design and build the worksheets.

Answering Questions

The pointer is normally located to the right of the first question on a screen. To answer a question, type a response. Then press the RETURN key. The pointer moves down to the next response.

When you have answered the final question in the prompting area, pressing the RETURN key moves the highlight to the command line. Use the Next command to move to the next screen.

On some screens, the prompting area displays one question and several possible answers. An *x* marks the most likely (proposed) response.

To select the proposed response, press the TAB key, and use the Next command to proceed to the next screen.

To select a different response, move the pointer to that response and type *x*. Press the TAB key, then use the Next command to proceed to the next screen.

Changing Answers

To edit or change your responses in the prompting area:

1. Use the RETURN key to move the pointer to the response you want to change. Type over the current response.
2. If you make a mistake, erase unwanted characters by pressing the BACKSPACE key.

To delete a response you've already entered, move the pointer back to that question and press the DELETE key. This will erase the response completely.

3. Type the correct response.
4. Press the RETURN key. This enters the response and moves the pointer to the next response field.
5. If you do not want to change any other responses on the screen, use the TAB key to move the pointer to the command line. You can also use the TAB key to move from the command line back to the first question.

The Message Area

The next few screens describe the message area. The message area is in the lower left corner of the screen. It tells you what to do next. It may also display an error message. Three basic errors can occur when you answer questions.

1. A word is typed where a number is required.
2. The number typed is too large or too small.
3. A decimal number is typed where only an integer is allowed.

The “Message Directory” in the “Reference Guide” section at the end of Part 1 lists the messages you may see as you work with Cash Plan. Both error messages and information messages are listed, along with the cause for the message and the action you should take.

The Example Questioning Sequence

After learning how to fill in responses, you can see an Example questioning sequence by pressing *E* to carry out the Example command. Or you can carry out the Next command and fill in your own responses to a short questioning sequence. If you are using the Learning Case for the first time, look at the Example questioning sequence.

Microsoft Cash Plan

This screen lists basic information needed by Cash Plan for the questioning sequence.

PROJECTED COSTS: Introduction
Basic information

Enter company name : Upwardly Mobile Company

Enter project or division name : Widgets Product Line

Enter report name : Projected Costs

Description of budget period : 1982-1985

COMMAND: Example Help Load Next Quit Review Save

Enter responses

Press tab to move to command line

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After filling in the name of the company, the project or division name, the name of your reports, and the budget period, you will see a series of screens displaying information about intervals and units. For example, the screen describing unit selection for dollar amounts appears below:

PROJECTED COSTS: Introduction

Unit selection for entering dollar amounts

Ones — ☒

Thousands (000) — ☐

Millions (000,000) — ☐

COMMAND: Example Help Load Next Quit Review Save

Type an 'x' beside one choice

Press tab to move to command line

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Microsoft Cash Plan

After you select this basic information, the questioning sequence displays a list of products.

PROJECTED COSTS: Costs

List categories by typing in one category name per line

Suggested responses may be deleted or replaced

Cost 1 — Raw Materials

Cost 2 — Manufacturing

Cost 3 — Labor

Cost 4 — Shipping

Cost 5 — Sales Expenses

Cost 6 —

Cost 7 —

Cost 8 —

Cost 9 —

Cost 10 —

COMMAND: Example Help Load Next Quit Review Save

Enter responses

Press tab to move to command line

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The next few screens will ask you about projected cost data for each product.

Building a Worksheet

At the end of a questioning sequence, you create a SYLK file. A SYLK file contains the information Multiplan needs to create a worksheet. It contains your responses to the questioning sequences, as well as formulas and formatting instructions for building a Multiplan worksheet. This information is stored in Symbolic form. The SYLK file is the final product of Microsoft Cash Plan.

Carry out the instructions on the screen, and the program proposes a filename for the SYLK file. You can change this name; if you have a multiple-drive system and want to save to a disk in your data drive, include the drive specification with the filename. (For example, to write the file to drive B, rename the file “B:learn”.)

The Symbolic Link (SYLK) File

You've just completed the questioning sequence.
Now the program can build your Symbolic Link (SYLK) file (the file which Multiplan uses to create your customized Projected Costs worksheet).

First, enter the name of the Symbolic Link
file: **learn**

On the following screen, you will instruct the program to build your SYLK file. Once your file has been built, use the Quit command to terminate the program. Then refer to the manual to learn how to load your SYLK file into Multiplan.

COMMAND: Example Help Load Next Quit Review Save

Enter responses
Press tab to move to command line 95% Free program: learn

Cash Plan builds the SYLK file using the sample data that you supplied and saves it on the Learn Program disk (unless you specified a data drive).

Quitting the Learning Case

After the SYLK file is built, the pointer will appear on the Quit command. Press the RETURN key or *Q*. Then press *Y* to confirm that you are quitting this session.

You can stop the Learning Case while it is running by executing the Quit command. To carry out the Quit command, press the RETURN key or the TAB key until the pointer goes to the command line. Type *Q*, then press *Y* to confirm that you want to quit.

Creating a Multiplan Worksheet

If you wish to see how the responses you have entered will be translated into a Multiplan worksheet, load the SYLK file into Multiplan to create a Multiplan worksheet.

To load your SYLK file into Multiplan:

1. Put the Multiplan System disk in drive A.
2. If you have a multiple-drive system and saved the SYLK file on the data drive, type:

MP D:SYLKFILENAME D:NORMALFILENAME

For example, you could type:

MP B:LEARN B:LEARN.MP

3. If you have a single-drive system, type:

MP LEARN LEARN.MP

(See the “Managing Files and Memory” section for details on using filename extensions.)

When Multiplan asks you to

Enter Y to retry access to learn

remove the Multiplan System disk from drive A.

Put the disk containing the SYLK file “learn” in drive A.

Type Y.

Multiplan will read the SYLK file and create a Multiplan worksheet. This worksheet will be displayed on the screen. This is the worksheet created by the Learning Case example.

#1	1	2	3	4
1	Upwardly Mobile Company			
2	Widgets Product Line			
3	Projected Costs			
4	1982-1985			
5				
6				
7		Growth		
8		Rate (%)	1982	1983
9	=	=	=	=
10	Costs			
11	Raw Materials	11.50	\$43,000.00	\$47,945.00
12	Manufacturing	8.00	\$26,000.00	\$28,080.00
13	Labor	12.00	\$71,000.00	\$79,520.00
14	Shipping	6.50	\$11,000.00	\$11,715.00
15	Sales Expenses	8.50	\$17,000.00	\$18,445.00
16				
17	Total Costs		\$168,000.00	\$185,705.00
18				
19	Overall Increase (%)			10.5
20				
COMMAND: Alpha Blank Copy Delete Edit Format Goto Help Insert Lock Move				
Name Options Print Quit Sort Transfer Value Window Xternal				
Select option or type command letter				
R1C1	"Upwardly Mobile Company"	97% Free	Multiplan: b:learn	

You can use Multiplan commands to view and modify the worksheet. Refer to your Multiplan manual for information on Multiplan commands.

Compare your new worksheet with the printed copy to see how changes affect all parts of the worksheet.

Note

The file “learn.mp” contains the Multiplan worksheet you just created. If you make changes to the worksheet which you would like to record, use the Multiplan Transfer Save command.

The Selective Review Menu

You can also review while you are using the questioning sequence in the Learning Case. To use the Review command:

1. Go to the third screen and press *P* and then the RETURN key. Or you can move screen by screen by pressing the TAB key, then *N* (for Next).

2. Choose and carry out the Review command. You will see the Selective Review Menu.

SELECTIVE REVIEW MENU

Place an 'x' beside the section you'd like to review

The Screen & the Pointer —

The Command Area —

The Prompting Area —

The Message Area —

The Questioning Sequence — ☒

No Further Review —

COMMAND: Example Help Load Next Quit Review Save

Type an 'x' beside one choice

Press tab to move to command line

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3. Select the kind of information you want to review. The kind of information you specified appears on the screen. You can change responses as they are displayed.
4. When you are finished, use the Next command to move through the screens; or use Review again to select another topic from the Selective Review Menu.

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A Microsoft Cash Plan questioning sequence helps you organize your cash flow data into values that can be used on a Multiplan worksheet.

The following diagram briefly illustrates how Cash Plan and Multiplan use the data in a Cash Plan questioning sequence.

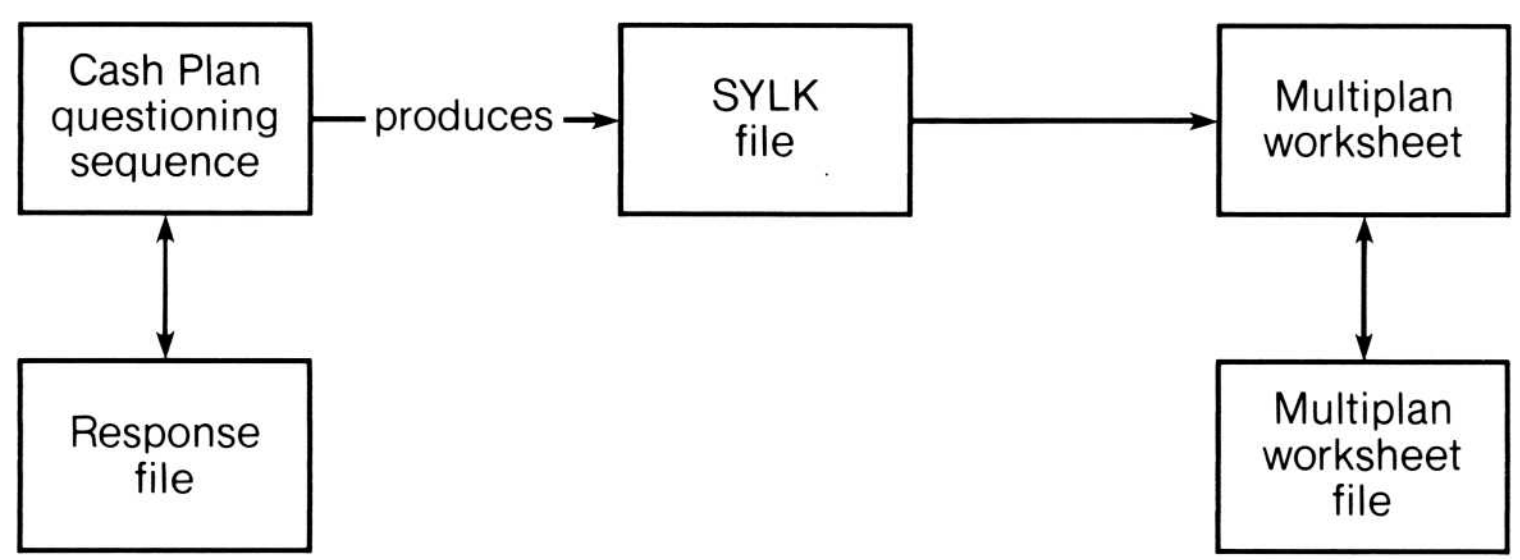


Figure 3. Files Created by Multiplan and Cash Plan

Cash Plan builds a SYLK file that can be loaded into Multiplan to create a Multiplan worksheet.

Cash Plan can also build and save a response file that you can load back into Cash Plan, modify, and then save again.

The Multiplan worksheet can be saved in a Multiplan worksheet file. You can later load this worksheet into Multiplan and use it again.

Using a Microsoft Cash Plan questioning sequence to build a Multiplan worksheet involves the following process:

1. First, start Cash Plan and complete the Worksheet Format questioning sequence. The Worksheet Format asks you for basic information: name of company, name of worksheet or report, budget period and intervals, and so on.
2. Then, answer the questions in the questioning sequence for the worksheets. You can answer questions for one worksheet, or for all five. (You must answer questions for at least one worksheet to build a SYLK file.)
3. When you have finished a worksheet questioning sequence, you can review your responses.
4. You can also save your responses in a response file. Saving a response file is useful if you cannot enter all of your responses at a single session, or if you might change your data later.
5. Next, use the Cash Plan program to create a SYLK file. This SYLK file includes your responses to the questioning sequence, plus formulas and other instructions needed to create the Multiplan worksheet. Cash Plan will propose a filename for the SYLK file. Press the RETURN key to accept the suggested name. Or, you can change the filename if you wish.
6. After the SYLK file has been created, you can quit the Cash Plan questioning sequence.
7. Next, start Multiplan and load the SYLK file into Multiplan. Multiplan uses the SYLK file to build the Multiplan worksheet.
8. You can use this worksheet just as you would any other Multiplan worksheet. When you finish making changes, be sure to save the Multiplan worksheet.

This process is described in more detail in the next few pages.

A Cash Plan questioning sequence also includes an Example Case. Each worksheet section in Part 2 contains an “Example Case.” Turn to these pages for more information on the Example Case.

The Example Case is simply a questioning sequence with the responses filled in. Use the Example Case to see how Microsoft Cash Plan and Multiplan set up worksheets. Or, you can use it if you have questions about how to enter data or about what sort of data is needed.

Starting a Questioning Sequence

Before building a Multiplan worksheet, go through the corresponding Cash Plan questioning sequence.

If you are using Cash Plan for the first time, begin with the Learning Case. Turn to the section “Learning Cash Plan” in this manual to start the Learning Case.

To start the questioning sequence:

1. Put the Cash Program disk in the startup drive and start MS-DOS.
2. To start Cash Plan, type

XP CASH

and press the RETURN key.

The first screen will appear. This screen introduces Microsoft Cash Plan, and gives you three options to select from:

- If you are using Cash Plan for the first time, you may want to go through the Example Case. The Example command is the proposed response.
 - Start entering your data for the questioning sequence by using the Next command.
 - Load a response file created at an earlier session by using the Load command.
3. Carry out one of these three commands.
- If you carried out the Example command or the Load command, you will see the Cash Plan main menu. Use the Next command to go to the first screen of this questioning sequence. If you don't want to make any changes to this section, type *x* next to another worksheet name and move on.

CASH PLAN
Main Menu

Worksheet Format — ☒

CASH COLLECTIONS FROM SALES —

CASH PAYMENTS FOR MATERIALS OR MERCHANDISE —

CASH PAYMENTS FOR OPERATIONS —

NONOPERATING CASH FLOWS —

CASH BUDGET —

COMMAND: Example Help Load Next Quit Review Save

Type an 'x' beside one choice
Press tab to move to command line

80% Free program: cash

- If you carried out the Next command and you are creating a new worksheet, the Worksheet Format questioning sequence is required. You will see the first screen of the Worksheet Format.

The questioning sequence always displays what your next response or action should be. This information appears in the message area and in the prompting area.

Note

You can quit the questioning sequence at any time by using the Quit command. This will stop the program and return you to MS-DOS. If you want to save your responses to the questioning sequence first, use the Save command, then the Quit command.

You can also review your responses at any time using the Review command. See the “Reference Guide” section for more information on these commands.

The Worksheet Format Questioning Sequence

The Worksheet Format questioning sequence contains basic information needed for building a worksheet: name of company, name of worksheet, product line, budget period, time intervals, and so on. If you are creating a new worksheet, or if you are loading a response file and need to change or add something defined in this section, fill out the Worksheet Format questioning sequence.

If you are loading a response file, or using the Example Case, the Worksheet Format will be already filled in. You can go ahead to one of the worksheet questioning sequences.

When you first start the questioning sequence, Worksheet Format will be the proposed response on the main menu. To choose this response, press the TAB key to jump to the command line, then press the RETURN key to go to the next screen of the Worksheet Format questioning sequence.

If you are starting to build a worksheet, you cannot continue without completing the first four screens of the Worksheet Format.

1. The first screen lists company name, budget period, and report names. Fill in the responses. Each response field is limited to 30 characters.

The screen below shows the first screen of the Worksheet Format questioning sequence. (The screens in this section are taken from the Example Case, so the responses are filled in.)

CASH PLAN: Worksheet Format

Basic information

Company name

: Bay Company

Description of budget period

: 1983

CASH COLLECTIONS FROM SALES report name

: Collections From Sales

CASH PAYMENTS FOR MATERIALS OR MERCHANDISE

:

report name

: Payments for Materials/Merch.

CASH PAYMENTS FOR OPERATIONS report name

: Payments for Operations

NONOPERATING CASH FLOWS report name

: Nonoperating Cash Flows

CASH BUDGET report name

: Cash Budget

COMMAND: Example Help Load Next Quit Review Save

Enter responses

Press tab to move to command line

79% Free program: cash

You can answer questions for one worksheet or for as many as you want. Use the Next command to go to the next screen.

2. The next few screens select units, intervals, and time lags. In many cases there is a proposed response. You can change the proposed response by typing over it, or by typing *x* next to another response. Use the Next command to go on.

3. A screen will be displayed listing products or product lines. You can list up to ten responses.

CASH PLAN: Product or Product Line
List categories by typing in one category name per line
Suggested responses may be deleted or replaced

Product 1	— Fishing Reels
Product 2	— Fishing Rods
Product 3	—
Product 4	—
Product 5	—
Product 6	—
Product 7	—
Product 8	—
Product 9	—
Product 10	—

COMMAND: Example Help Load Next Quit Review Save

Enter responses
Press tab to move to command line

78% Free program: cash

If you want to list fewer than ten products, press the TAB key to skip the rest. Carry out the Next command to go to the next screen.

4. A sales revenue screen for each product you listed will appear. Fill in the sales revenues for the appropriate time period.

CASH PLAN: Fishing Reels

Sales

Enter sales revenue for each of the following months

September 1982	:	\$	320000
October 1982	:	\$	312000
November 1982	:	\$	308000
December 1982	:	\$	285000
January 1983	:	\$	300000
February 1983	:	\$	320000
March 1983	:	\$	315000
April 1983	:	\$	340000
May 1983	:	\$	355000
June 1983	:	\$	365000
July 1983	:	\$	380000
August 1983	:	\$	370000

COMMAND: Example Help Load Next Quit Review Save

Enter responses

Press tab to move to command line

77% Free program: cash

Note

If you are answering questions for the last three worksheets—Cash Payment for Operations, Nonoperating Cash Flows, or Cash Budget—you can skip steps 3 and 4. Go to the main menu by using the Review command.

5. After you complete the series of sales revenues screens, the Cash Plan main menu reappears.

Type *x* next to the worksheet you want to create, and begin the questioning sequence for that worksheet.

The Worksheet Questioning Sequences

A worksheet questioning sequence always prompts you for the information it needs. For some responses, you simply type *x* next to your choice in the response field. For others, type your cash flow figures and percentages.

- 1. When you choose a worksheet to build, you will see a submenu. Each worksheet questioning sequence has a submenu similar to the one below. The individual topics will be different for each worksheet.

CASH COLLECTIONS FROM SALES
Menu

Cash Sales — ☒

Credit Collection —

Discounts —

Returns & Allowances —

Finance Charges —

Build Symbolic Link File —

Return to Main Menu —

COMMAND: Example Help Load Next Quit Review Save

Type an 'x' beside one choice
Press tab to move to command line

78% Free program: cash

The questioning sequence will request information about each of these categories, one by one. There will be one or more screens covering each topic. You fill in the financial data, and specify the method of entering amounts and time lags.

While the questions in each worksheet questioning sequence vary, the structure of the questioning sequences are very similar. The submenu for the second worksheet, Cash Payments for Materials or Merchandise, is shown below:

CASH PAYMENTS FOR MATERIALS OR MERCHANDISE

Menu

Product Type Information — x

Manufactured Product Input Materials —

Production/Payment Lag —

Beginning Inventory of Finished Goods —

Beginning Inventory of Input Materials —

Product/Input Materials Cost —

Build Symbolic Link File —

Return to Main Menu —

COMMAND: Example Help Load Next Quit Review Save

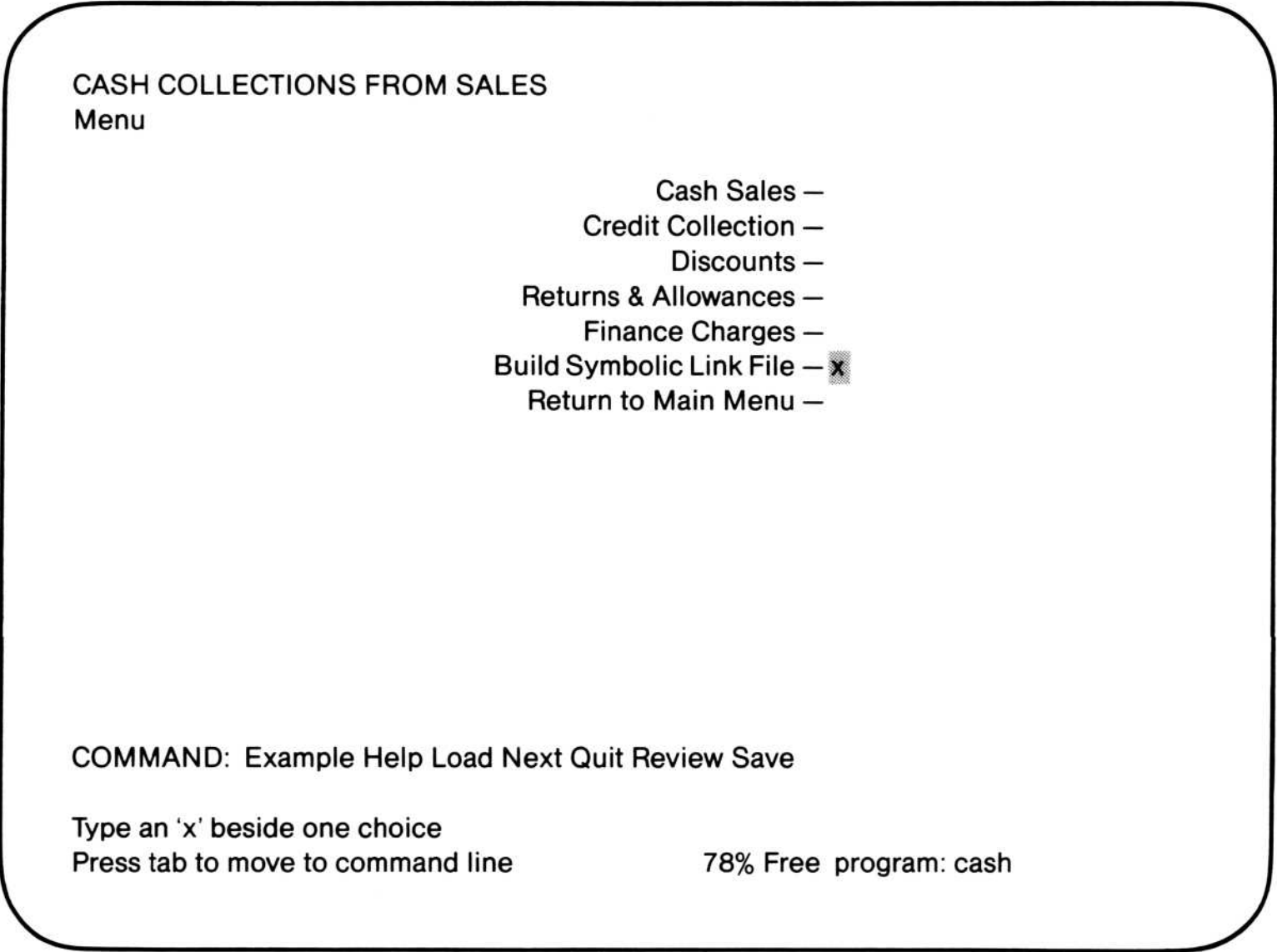
Type an 'x' beside one choice

Press tab to move to command line

78% Free program: cash

You need not complete these categories in the order given. But if you miss a part that other areas of the worksheet depend on, Cash Plan will use the current responses for that section. If you have never built this worksheet before, Cash Plan will use the proposed responses.

2. When you complete the questioning sequence for a worksheet, you will see the worksheet submenu again. Notice that “Build a Symbolic Link File” is the proposed response.



To build the SYLK file, choose this response and carry out the Next command. Turn to “Creating a SYLK File” in this section to continue.

To review your responses to the questioning sequence, see “Reviewing Responses to the Questioning Sequence” below.

To save your responses to the questioning sequence, see “Saving Responses to the Questioning Sequence” in this section.

Reviewing Responses to the Questioning Sequence

You can review your responses any time during the questioning sequence. You may want to use the Review command to review your answers to the questions before you create a SYLK file or a response file.

When you choose the Review command, Cash Plan returns to the worksheet submenu. Type *x* next to the section that you want to review, then choose and carry out the Next command. You return to the questioning sequence at the point you selected. The data you entered appears in the response fields. (Or you can choose to return to the main menu listing the questioning sequences.)

There are several ways to change your answers:

- Type new data over your responses.

- Use the BACKSPACE key to erase characters.

- Use the DELETE key to delete the entire response.

- Use the spacebar to insert blank spaces.

When all responses have been reviewed, the worksheet submenu appears again, with “Build a Symbolic Link File” as the proposed response.

However, before building a SYLK file, we highly recommend saving your responses in a response file.

Saving Responses to the Questioning Sequence

To save your responses to the questioning sequence, use the Save command to create a response file. Saving your responses is optional, but is recommended. You may not be able to complete the entire questioning sequence, or you may need to make changes to your data later.

To save a response file:

1. When you have completed one or more worksheet questioning sequences, carry out the Save command.

The following message will appear on your screen:

SAVE results in file: *filename.rs*

2. If you have a single-drive system, insert a data disk in drive A and press the RETURN key to save the file under the proposed name. If you want to save the file under a different name, type the new filename and then press the RETURN key.

If you have a multiple-drive system, insert a data disk in the data drive. Type a drive specification with the filename. Type:

d:filename.rs

Cash Plan will save the file on the data disk in the drive you indicated. We recommend that you use an “.rs” suffix in your response filenames so that you will know which files are response files. See “Naming Your Files” in the “Managing Files and Memory” section for more information.

Creating a SYLK File

A SYLK file contains the information Multiplan needs to create a worksheet. It includes your responses to the questioning sequence, as well as formulas and formatting instructions that Multiplan uses to create the Multiplan worksheet. The SYLK file is the final product of Microsoft Cash Plan.

After completing all questions for your worksheet(s), you will see the questioning sequence submenu. Choose “Build Symbolic Link File.” Carry out the Next command.

To create a SYLK file:

1. Cash Plan proposes a filename. To use this name, carry out the Next command. To use a different filename (or to add a drive specification), type your filename. (See “Naming Your Files” in the “Managing Files and Memory” section for more information.) The following message appears on the screen:

All needed information is complete.
Use REVIEW to review responses.
Use SAVE to save responses.

Insert data disk and use NEXT to build Symbolic Link (SYLK) file.

2. When you see the “All needed information is complete...” message, remove the Cash Plan Program disk from the startup drive and insert a data disk.

If you have a multiple-drive system and have specified a data drive, be sure that the disk you want to save the SYLK file on is in the data drive.

3. Choose and carry out the Next command.
4. The system will display the following message:

Enter Y to write to data disk:

Type Y and the SYLK file will be written to disk.

5. As the SYLK file is being written onto the data disk, the following message will appear on your screen:

Building Symbolic Link (SYLK) file: *SYLK filename*
Record:*number*
Please wait.

When the entire file has been written to the disk, the following message will appear on your screen:

Symbolic Link (SYLK) file is complete.
Use QUIT to exit program.

Quitting the Questioning Sequence

Once the SYLK file has been saved, you can quit the questioning sequence.

1. Choose and carry out the Quit command.

The following message will appear:

Enter Y to confirm

2. Type *Y*

The A> prompt will appear on your screen indicating that you are at MS-DOS command level.

If “% Free” at the bottom of the screen shows that you have plenty of memory left, you can create more worksheets without quitting. Carry out the Review command, and type *x* beside “Return to main menu.” Carry out the Next command, and then go to the part of the questioning sequence you want to use.

Creating Multiplan Worksheets With Cash Plan

After you have created the SYLK file with the Microsoft Cash Plan program, the next step is to load this file into Multiplan so that you can use your data in a Multiplan worksheet.

Loading the SYLK File Into Multiplan

To create a Multiplan worksheet, load the SYLK file into Multiplan.

1. Put your Multiplan System disk into the startup drive. You will see the MS-DOS prompt.
2. Type:

MP D:SYLKFILENAME D:NORMALFILENAME.MP

This loads the worksheet and converts it from Symbolic mode to Normal mode.

If you have a worksheet containing external copying, you may have problems loading the worksheet. If so, use the following procedure. For more information on the eXternal Copy command, see Chapter 9, "Command Directory," in your Multiplan manual.

1. Type *MP* and press the RETURN key.

Use the Multiplan Transfer Options command to change the file format from Normal to Symbolic. If you are loading the SYLK file from a data drive, specify this in the setup field of the Transfer Options command. See the Transfer Options command in Chapter 9, "Command Directory," in your Multiplan manual for details on using this command.

2. Put the Cash Plan data disk containing the SYLK file into one of your disk drives.
3. Use the Multiplan Transfer Load command to load your SYLK file into Multiplan. (If there is a worksheet on the screen, you must first use Transfer Clear.) See the Transfer Load command in Chapter 9, "Command Directory," in your Multiplan manual.

The Multiplan worksheet that you built will appear on the screen within a few minutes.

4. Use the Multiplan Transfer Options command to change the file format from Symbolic back to Normal. See the Transfer Options command in Chapter 9, “Command Directory,” in your Multiplan manual for more information on how to change file format.

Changing Values on the Multiplan Worksheet

The Multiplan worksheets you create with Microsoft Cash Plan function the same as any Multiplan worksheet. You can change numeric values by entering new values with the Multiplan Value command. The changes will be reflected automatically in all related values on the worksheet.

In general, whenever you update values on a worksheet which other worksheets are based on, save the first worksheet, then load and save each related worksheet to revise the entire group of worksheets. If you don't know which worksheets support others, use the Multiplan eXternal List command.

You cannot change certain values on the worksheet. Cash Plan has “locked” those cells to protect you from disrupting a formula.

For example, if you select “base amount with a constant growth rate” as the method for entering an amount in your Cash Plan, you can change the base amount and the growth rate on your Multiplan worksheet. You cannot change the projected values, because these cells contain calculations based on the base amount and growth rate you have entered. To change the contents of these cells would make the data based on the growth rate meaningless.

You cannot change Worksheet Format on the worksheet itself. For example, you cannot add or delete time periods or categories. To change Worksheet Format, repeat the questioning sequence or load the response file back into the questioning sequence and review and change your answers. Then create a new SYLK file and load it into Multiplan.

Values can be copied from one worksheet to a second worksheet if the first worksheet was saved, and the second worksheet is loaded into Multiplan.

The Multiplan worksheets cannot copy information from one worksheet to another if related worksheets span different time periods or use different time intervals.

Saving the Multiplan Worksheet

When you finish making changes to your Multiplan worksheet, use the Multiplan Transfer Save command to save the results onto your Cash Plan data disk. (Be sure that Transfer Options is set to Normal mode.) See the Transfer Save command in Chapter 9, “Command Directory,” in your Multiplan manual for more information on how to save files.

You should save all related SYLK files, Multiplan worksheet files, and questioning sequence response files on the same data disk. See the following section, “Managing Files and Memory,” for more information on how to manage your Microsoft Cash Plan files.

Saving these files is a very important step. When you use Cash Plan, you create a series of interrelated Multiplan worksheets. If you save one worksheet, its results can usually be copied directly into related worksheets.

Starting Another Questioning Sequence

When you finish working with one Cash Plan questioning sequence, or when you finish working with a Multiplan worksheet, you can start another questioning sequence.

If you are in Cash Plan, use the Review command to go to the worksheet submenu. Then select the part of the questioning sequence you wish to use. Choose and carry out the Next command.

If you are in Multiplan, quit by using the Quit command. Then start Cash Plan from the beginning. Insert the Cash Program disk, then start MS-DOS. Type *XP CASH* to start the questioning sequence.

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The Disk Directory

When you see A> (or B>, or any other letter and a >), MS-DOS is running and waiting for instructions. To see a list of the files (worksheets and programs) on the disk in the startup drive, type:

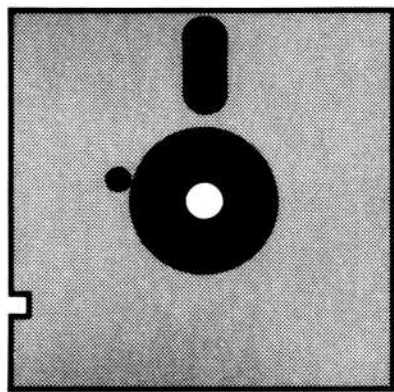
```
DIR A:
```

Then press the RETURN key.

A directory of all the files stored on the disk in drive A will appear on your screen. It lists the filename, extension, size of file, date last edited, and time last edited for each file.

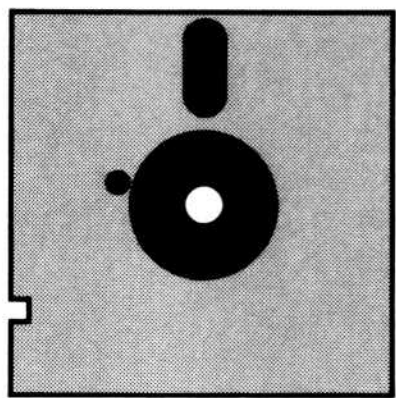
The copies of the Cash Plan disks that you make should contain these files:

Cash Plan Boot Disk



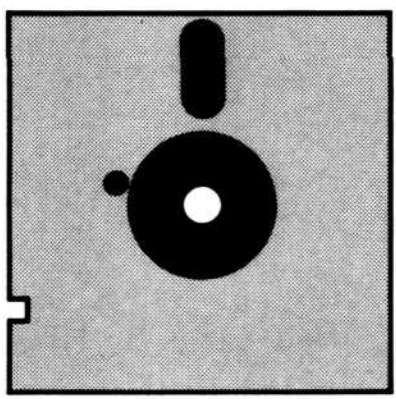
COMMAND.COM	MS-DOS System file
XP.COM	Cash Plan startup file
XPBARE.COM	
INSTALL.DAT	Install Program files
INSTALL.COM	
INSTALL.OVL	
INSTALL.OVD	
INSTALL.SPC	
INSTALL.MSG	

Cash Program Disk



COMMAND.COM	MS-DOS System file
XP.COM	Cash Plan startup file
XP.HLP	Help Program file
CASH.LD CASH.INT CASH.TXT	Cash Plan Program files
CASH.SAM	Cash Plan sample data

Learn Program Disk



COMMAND.COM	MS-DOS System file
XP.COM	Cash Plan startup file
XP.HLP	Help Program file
LEARN.LD LEARN.SAM S1.DM through S29.DEM	Learning Case Program files

The COMMAND.COM is the operating system file. The XP.COM file is the Install file. You copied these files in the “Getting Started” section.

Managing Your Files

Computer files, like files of paper documents, are collections of information. A particular computer file may contain computer programs, data (numbers, text, formulas, etc.), or a combination of programs and data.

Your Cash Plan Data Files

You will also create new files containing your own data and worksheets. You should save all related SYLK files, Multiplan worksheet files, and questioning sequence response files on the same data disk. Label your Cash Plan data disks to indicate the files they contain.

There are three kinds of data files to manage as you work with Cash Plan:

1. The Multiplan SYLK file. You create and save a SYLK file when you complete a questioning sequence. The SYLK file translates your answers to the questioning sequence into instructions and data that are used by Multiplan to create a worksheet. Without a SYLK file, Multiplan cannot create your worksheet.
2. The response file. This file contains saved responses to a Cash Plan questioning sequence.

The response file is optional. You do not have to save your responses to a questioning sequence to continue using Cash Plan. However, you should create a response file if you cannot enter all of your responses in a single session, or if you might change your responses later on. Then you can load the response file and edit it. You avoid retyping all your responses to the questioning sequence.

3. The Multiplan worksheet file. This file is created by loading the SYLK file into Multiplan and saving the resulting worksheet as a Normal mode file. See the Transfer command in Chapter 9 of the Multiplan manual for more information on saving files in Normal mode.

The Multiplan worksheet file is also required. Saving Multiplan worksheets is important because many Multiplan worksheets need to copy information from other Multiplan worksheets. Information can be copied only from worksheets which have been saved. Data cannot be copied from SYLK files.

Creating Batch Files

You can simplify some of the procedures described in this manual by using an MS-DOS batch file. You can start Multiplan and load the SYLK and worksheet filenames automatically.

Be sure to copy the batch file onto all disks that contain the SYLK and worksheet files you want to load. Then the batch file will be available when MS-DOS tries to read it.

Here is an example of a batch file for the Learning Case for a single-drive system.

```
pause Insert Cash Plan Boot disk
xp learn
pause Insert Multiplan System disk
mp learn learn.mp
```

See your MS-DOS manual for additional information on batch files.

Naming Your Files

When Microsoft Cash Plan or Multiplan asks for a filename, you must give the exact name of the file. We suggest that you use the following filenaming conventions to identify and manage your files.

Cash Plan proposes a filename for SYLK files and response files when you create them. If the file was created at an earlier session, the current filename will be proposed when you revise it. Press the RETURN key to accept the proposed name. Or, type a new filename if you wish to change it.

If you have a multiple-drive system, you will probably store files on a disk in a data drive. If so, include the drive designation in your filename; for example, B:SALES.RS.

Do not use the .LD filename extension for files or worksheets you create or rename. This extension is reserved for Cash Plan Program files.

SYLK Files

The proposed SYLK filenames for the five worksheets are as follows:

Questioning Sequence	SYLK Filename
1. Cash Collections From Sales	sales
2. Cash Payments for Materials or Merchandise	products
3. Cash Payments for Operations	operations
4. Nonoperating Cash Flows	flows
5. Cash Budget	budget

Multiplan Worksheet Files

You must specify a filename when you create the Multiplan worksheet file. When naming your Multiplan worksheet file:

1. Use the same filename that you used for the SYLK file.
2. Add the filename extension “.mp” to identify the file as a Multiplan worksheet file.
3. Use a version number in the filename extension if you plan to save more than one version of the same Multiplan worksheet.

Response Files

Cash Plan proposes a filename for the response file. Press the RETURN key to use this filename. Or, type a new filename if you don’t want to use the proposed response filename.

When naming your response file:

1. Use the same filename used for the SYLK file.
2. Use the filename extension “.rs” to identify the file as a response file.
3. Use a number in the filename extension to indicate the version if you save more than one version of the same response file.
4. If you have more than one disk drive, you can add a drive designation to your filenames.

For example, the files created from the Cash Collections From Sales questioning sequence would be:

File	Filename
SYLK file	sales
Multiplan worksheet	sales.mp
Response file	sales.rs

See your MS-DOS manual for more information on naming files.

Using Disk Drives

You may use one or several drives while you are working with Cash Plan. Here, we give you general guidelines on use of disk drives with Cash Plan. See your MS-DOS manual for more details about how your system uses disk drives.

The Startup Drive

The startup drive is the drive you start Microsoft Cash Plan from. Cash Plan always looks for the files and programs it needs on the disk in the startup drive.

Once Cash Plan is running, you can remove the Cash Plan Program disk and put a data disk in the startup drive. (See “When to Change Disks” in this section.) If Cash Plan needs a portion of a program or Help file not in the computer, it displays this message:

Enter Y to retry access to *filename*

When you see this message:

1. Remove the data disk from the startup drive.
2. Put in the Cash Plan Program disk that you started the session with.
3. Type Y.

Now go on with your work. If the file that Cash Plan needs is not on the disk you inserted, the message will reappear. Replace the disk with the disk containing the file you need.

Data Drives

Any drive other than the startup drive is a data drive. Unless you specify otherwise, MS-DOS assumes that any filename you type refers to a file on a disk in the startup drive. To specify a file on a disk in another drive, include the drive letter and a colon before the filename. For example, B:SALES refers to the file “sales” on the disk in drive B.

When to Change Disks

When you work with MS-DOS, it is safe to change disks in any drive when you see the MS-DOS prompt (such as A>). It is also safe to change disks when MS-DOS displays a message on the screen asking you to. In this case, follow the directions on the screen carefully.

When you work with Cash Plan, it is safe to change disks in the data drives *except* when you are reading the Help file or carrying out a command. The message

Working . . .

appears on the message line when you carry out a command. The Help file contains information on how to use commands. It is displayed by carrying out the Help command.

Warning

Do not try to change disks while Microsoft Cash Plan is carrying out a command. You may destroy information on the disks. In some cases, you may even lose the information you have in the computer.

Using Several Drives

While working with Cash Plan, you might use several disk drives. There are two ways to tell Cash Plan which drive the file you want is on.

1. If you specify a drive letter when you type a filename (B:SALES.RS or C:SALES.RS) in either the Save or Load command, Cash Plan will look for the file or save it on the disk in the specified drive.
2. If you don't specify a drive letter with the filename, Cash Plan will look for or save the file on the startup drive.

Memory Management

There is a limit to the amount of information that can be contained in the Multiplan worksheets created with your Cash Plan programs. This limit is determined by:

- The memory capacity of your computer.
- The amount of memory available for Multiplan.
- The maximum worksheet length allowed by Multiplan.
- The maximum number of categories and time periods allowed by the Cash Plan program.

With most Cash Plan programs, you can produce Multiplan SYLK files that require more memory than is available on your computer. It is also possible that the worksheet designed by the SYLK file will be longer than the 255 lines allowed by Multiplan. In either event, the worksheet will be truncated. The “Insufficient memory” message will appear briefly, and the status line will read “0% Free.”

Table 1, “Data Limitations,” is designed to help you avoid entering more information than Multiplan can display. It shows how much data you can enter during specific Cash Plan questioning sequences, depending on the amount of memory your computer has. Table 2, “Data Limitations: Cash Payments for Materials or Merchandise Worksheet,” shows the limitations for Worksheet 2, Cash Payments for Materials or Merchandise.

Note

These tables are guidelines. They are based on the assumption that there is 56K of memory available for Multiplan to store documents. You can find out how much memory is available by using the Multiplan Options command. Then adapt the information in the tables accordingly.

If there is not enough memory to prepare your worksheet, try reducing the number of categories or periods by making categories broader. For example, if you find that you cannot include all data for a cost category, try grouping related costs into a single category. You will find, in most cases, that your space problems can be resolved in this way. An additional example follows the tables.

Table 1
Data Limitations (for MS-DOS with 128K of memory)

Worksheet	Number of Intervals		
	3	6	12
Cash Collections From Sales			
With all lags set to 1			
Number of products	10	10	10
With all lags maximum			
Number of products	9	9	9
Cash Payments for Materials or Merchandise (See Table 2)			
Cash Payments for Operations			
With no lags			
Total number of categories*	100	100	100
With maximum lags			
Total number of categories*	100	100	85
Nonoperating Cash Flows			
Total number of categories†	200	200	200
Cash Budget	no limitations		

* “Total number of categories” means the number of production and warehousing costs, plus the number of administrative costs, plus the number of selling costs.

† “Total number of categories” means the number of inflows plus the number of outflows.

Table 2
Data Limitations: Cash Payments for Materials or Merchandise Worksheet (for MS-DOS with 128K of memory)

Number of Products	Number of Intervals		
	3	6	12
5			
With all lags set to 1 Inputs	50	50	50
With all lags maximum Inputs	50	47	34
10			
With all lags set to 1 Inputs	41	41	41
With all lags maximum Inputs	41	37	24

In the Cash Payments for Materials and Merchandise worksheet, there is a trade-off between the number of products you can put on the worksheet and the total number of inputs you can display for those products which are manufactured.

For example, suppose you are preparing a Cash Payments for Materials and Merchandise worksheet that lists seven products, and spans a time period of four quarters. In this worksheet, all products are manufactured and, for each product, you want to list eight inputs.

$$7 \text{ products} \times 8 \text{ inputs} = 56 \text{ total inputs}$$

Consult Table 2. All of the information you want to list on the worksheet will not fit on the screen display, because only

$$5 \text{ products} \times 10 \text{ inputs} = 50 \text{ total inputs}$$

within a three-quarter time period will fit on the screen display.

$$5 \text{ products} \times 8 \text{ inputs} = 40 \text{ total inputs}$$

within a six-quarter time period will also fit on the screen display. Therefore, to accommodate all three elements of information on the screen display, you must modify one of the following:

The number of products

The number of inputs per product

The time intervals

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Commands

This section describes the Microsoft Cash Plan commands. The information presented here elaborates on what you covered in the Learning Case program. It is limited to the use of the Multiplan questioning sequence. For information about creating worksheets, see the “Using Cash Plan” section.

Example

The Microsoft Cash Plan questioning sequence includes an Example Case, and each worksheet section in Part 2 of this manual contains an “Example Case.” The Example Case describes the situation of a hypothetical company.

To see the Example Case worksheet, choose and carry out the Example command. The questioning sequence for the Example Case will be displayed on the screen. The responses will be filled in. Look at the “Example Case” in that worksheet section to see where the data for the hypothetical company was entered to create the worksheet. Review each question in the questioning sequence and its response. Use the Next command to move to the next screen.

You can create a SYLK file for the Example Case and load it into Multiplan. The worksheet based on the Example Case can be used like any other Multiplan worksheet.

Printed worksheets for the Example Case are included in the Worksheet Folder at the end of this manual. You can compare these worksheets with your own.

Help

The Help command displays two screens that explain the commands and keys you use in the program. You can use the Help command to refresh your memory about the commands and keys anytime during a questioning sequence.

When you finish reading the Help screens, press the RETURN key to return to the screen you were working with before using the Help command.

Load

The Load command loads a response file (the saved results of a questioning sequence which has been stored on disk) back into your computer's active memory. After you have loaded the file, you can continue to work with it.

It does not load SYLK files into Multiplan. The Multiplan Transfer Load command does this.

To load a response file, you must have already started the Cash Plan questioning sequence. (See "Starting a Questioning Sequence" in the "Using Cash Plan" section.) Move the pointer to the command line and type *L*. The following message will appear on your screen:

LOAD responses from file:

Enter the name of the response file you want to load and press the RETURN key.

If you do not specify a disk drive, the system will look for the file on the disk in the startup drive. If the response file is not on the disk in the drive indicated, the following message will appear on your screen:

Enter Y to retry access to: *filename.ext*

Replace the disk with the correct disk and type *Y*, or you may type *N* and enter a different filename.

Next

The Next command moves you to the next screen in the Microsoft Cash Plan questioning sequence. The Next command is usually the proposed response; that is, the pointer is on the Next command each time it returns to the command line.

If the pointer is on the command line, type *N* to carry out the Next command.

If the pointer is on the Next command, you can also press the RETURN key to carry out the command.

Quit

You can end a Cash Plan questioning sequence at any time by using the Quit command.

If you quit a questioning sequence without either creating a SYLK file or using the Save command to save your answers in a response file, your data will be lost.

If you quit before you complete the answers for one worksheet, you cannot create a SYLK file. You will lose all responses entered during this session (or since you last created a response file).

If you create a SYLK file but quit without creating a response file, your responses in the SYLK file can be used by Multiplan to build a worksheet. However, you cannot load your responses back into the Cash Plan questioning sequence.

To carry out the Quit command, move the pointer to the command line and press *Q* (for Quit). The following message will appear on your screen:

Enter Y to confirm:

Press *Y* to quit. If you do not want to quit, type *N*.

Review

The Review command lets you go back through the screens you have completed and change your responses to any of the questions as they are displayed. You can review at any time during the questioning sequence.

You can move quickly through the screens that you don't want to change by pressing the TAB key, then using the Next command.

If you are using the questioning sequence and have not completed Worksheet Format, carrying out the Review command takes you to the first screen of Worksheet Format.

If you have filled out enough of the worksheet to build a SYLK file, you will return to a menu when you carry out the Review command. If you are in a questioning sequence for a worksheet, the worksheet submenu will appear. If you are not in a questioning sequence, the main menu will appear. This menu lets you select categories of questions in the questioning sequence so that you can review just one question instead of repeating the entire questioning sequence. Type *x* next to the section you want to review. If you wish, you can change your previous responses as they are displayed.

When you have reviewed all the responses in one category, the menu will reappear on the screen. If you want to continue reviewing, select another category. You can then continue the questioning sequence or quit the session.

If you are using the Learning Case, you can use the Review command once you get to the questioning sequence section of the program. You cannot review during the descriptive part of the program, which discusses how to use the screen, commands, keys, and the prompting area.

Save

The Save command saves your answers to the questioning sequence. Your answers are placed in a response file.

Saving response files is a very useful option. Use the Save command to create response files when:

1. You cannot complete the questioning sequence in one sitting and want to save the answers you have entered.
2. You might want to change the structure of the worksheet later, for example, to add or delete categories or change time periods or intervals. A change that affects any other portion of your worksheet or any related worksheet cannot be made on the Multiplan worksheet. Make these changes in the response file, and then create a revised worksheet.

To save your responses to the questioning sequence, move the pointer to the command line and type S.

The following message will appear:

SAVE results in file: *filename.rs*

Press the RETURN key if you want to save the file under the name suggested. If you want to save the file under a different name, type another filename and press the RETURN key.

If there is already a response file with that name on the disk, Cash Plan will ask:

Overwrite existing file?

Type *Y* to replace the existing response file with the new response file. Type *N* if you don't want to replace the file on the disk with the new response file. Carry out the Save command again using a different filename. You can also modify the filename you entered the first time; for example, you can add a version number. Your file will be saved under this new name. Record the filename on the disk label.

To make any changes to this response file, load it and edit the responses. See the Load command for instructions on loading response files.

You do not have to save your answers to the questioning sequence, although it is a good idea to do so.

Message Directory

All needed information is complete.

Use REVIEW to review responses.

Use SAVE to save responses.

Insert data disk and use NEXT to build Symbolic Link (SYLK) file.

Cause. You have completed the questioning sequence.

Action. The program is waiting for your next command. If you want to build a SYLK file from your responses to the questioning sequence, use the Next command. Otherwise, choose and carry out the command you wish to use.

Bad directory in load file

Cause. A read error has occurred while the system was loading the program file.

Action. Try to load the program again. Make sure you do not open disk drive doors while the disk drive is in operation. If you still see this message, make a new copy of the program from your original write-protected disk.

Bad header in load file

Cause. The file labeled *program.LD* is not a program file.

Action. Copy the file *program.LD* from your original write-protected disk. Avoid using the .LD extension for files or worksheets you create or rename.

Building Symbolic Link (SYLK) file: *filename*

Record: *number*

Please wait.

Cause. You have told the Cash Plan program to write a SYLK file.

Action. None. The record number increases as the program writes the file. When the program has finished writing the file, you can continue your session.

Cannot copy into non-blank cell

Cause. An attempt is being made to carry out the eXternal Copy command to cells that already contain data or formulas.

Action. Make sure the worksheet from which you are externally copying has the same number of periods or intervals as the worksheet copying it.

Can't create SYLK file: *filename*

Cause. The SYLK file cannot be written to disk because the disk is full, or because the disk is write-protected.

Action. Replace the current disk with a data disk that is not write-protected and has enough space for the SYLK file.

Can't read from file: *filename*

Cause. Confirms a negative response to the "Enter Y to retry access to filename" message. The file named when executing a Load command could not be read because it is not on the disk.

Action. Try again. Make sure that the filename is spelled correctly and that the disk containing the file to be read from is in the correct disk drive.

Can't write to file: *filename*

Cause. The file named when executing a Save command cannot be written, either because the disk is full, or because the disk is write-protected.

Action. Make sure that the disk is not write-protected. If necessary, replace the disk with a formatted disk that has enough space for your file. Carry out the Save command again.

Cell locked by eXternal Copy

Cause. The cell which you are trying to edit, or in which you are trying to enter a value or formula, contains a value or formula copied from another saved worksheet.

Action. If you wish to change the value or formula, do so on the supporting worksheet. Otherwise, run Cash Plan again and enter the correct value directly into the questioning sequence.

Code portion of load file is bad

Cause. A read error has occurred while the system was loading the program file.

Action. Start MS-DOS again, then start Cash Plan. Do not open disk drive doors while the disk drive is in operation. If the error persists, make a new copy of the program from the original write-protected disk.

Confirm change: *worksheet name*

Cause. You are loading a SYLK file or saved worksheet which externally copies an area from another saved worksheet. The area it externally copies has been changed.

Action. Do not use the same name for worksheets with different numbers of periods or intervals (months, years, quarters, etc.). If you want the changed data copied to the worksheet, press *Y* to confirm. If not, press *N* to save the data as it is.

Current disk does not contain *program.LD*

Press CTRL-C to exit or replace with appropriate disk and press RETURN

Cause. The program you have chosen is not on the disk in the default drive.

Action. Put in the appropriate Cash Plan Program disk and press the RETURN key.

DATA portion of load file is bad

Cause. A read error occurred while the system was loading the program file.

Action. Start MS-DOS again, then start Cash Plan. Do not open disk drive doors while the disk drive is in operation. If the error persists, make a new copy of the program from the original write-protected disk.

Enter a filename

Cause. You have told the Cash Plan program to save your responses to the current questioning sequence or to load your responses from a previous session.

Action. Type a filename and press the RETURN key. Press the CANCEL key to cancel the command.

Enter responses

Cause. The Cash Plan program awaits responses to the part of the questioning sequence that is displayed.

Action. Type the appropriate information or response. Use the BACKSPACE key to erase errors. Press the RETURN key, TAB, or an Up or Down direction key to move to the next topic or to the command line. If there is already a response under or to the right of the highlight, press the RETURN key, TAB, or an Up or Down direction key to enter that response.

Enter Y to retry access to *filename*

Cause. The worksheet or SYLK file you are trying to load or copy from cannot be found.

Action. Put the disk containing the file you want to use in the disk drive and press Y. Specify the disk drive in the command line. Press any other letter to cancel the command.

Enter Y to retry access to MP system disk

Cause. The startup drive does not contain the Multiplan System disk.

Action. Insert the Multiplan System disk and press Y. If you have a multiple-drive system, you can keep the Multiplan System disk in one drive and the disk containing SYLK files and worksheets in another.

Enter Y to retry access to program disk

Cause. The startup drive does not contain the correct Cash Plan Program disk.

Action. Remove the disk in the drive and replace it with the correct Cash Plan Program disk, then type Y.

Enter Y to write to data disk:

Cause. You have requested that a SYLK file be created from your answers to the questioning sequence.

Action. Insert the data disk to which you would like the file to be written and type Y. Or, press CANCEL to cancel the command.

Error in formula

Cause. You are trying to load a damaged SYLK file.

Action. See “Memory Management” in the “Managing Files and Memory” section for guidelines on keeping worksheet data to a size your computer can handle. Then create the SYLK file again.

Error reading file: *filename*

Cause. An attempt has been made to load data from a file containing invalid values.

Action. Carry out the Load command again, making sure to supply the filename that was saved by the Cash Plan program. A Cash Plan program *cannot* load responses saved by a different Multiplan application program.

Error writing file: *filename*

Cause. The disk is full.

Action. Replace the data disk with another which has enough space. Execute the Save command again.

Program MUST be installed before executing

Cause. You tried to run a program on the Cash Plan Boot disk before configuring the disk for the appropriate type of computer or terminal.

Action. Run the Install program with the Cash Plan Boot disk in drive A.

File error writing SYLK file

Cause. The disk is full.

Action. Replace the data disk with a disk that has enough space and execute the Next command again.

File format error: line *n*

Cause. You are trying to load a file into Multiplan with the Transfer Options command set to “Symbolic,” but the file is not a SYLK file.

Action. If the file is a saved worksheet, set the Transfer Options command to “Normal,” then load it. Use different filename extensions for SYLK files and saved worksheets to help you tell them apart. If the file is neither a SYLK file nor a saved worksheet, it cannot be loaded into Multiplan.

File is not a saved worksheet

Cause. You are trying to load a file into Multiplan with the Transfer Options command set to “Normal” (the default value), but the file is not a saved worksheet; or the present worksheet is trying to copy externally from a file which is not a saved worksheet.

Action. You cannot copy externally from a SYLK file. If the file you are trying to load is a SYLK file, set the Transfer Options command to “Symbolic,” then load it. If the file is not a saved worksheet, you must load the SYLK file with the Transfer Options command set to “Symbolic,” then set the Transfer Options command to “Normal” and save the worksheet to permit external copying.

Illegal character in program name

Enter program name:

Cause. You have entered an incorrect program name.

Action. Enter the correct program name.

Incorrect load address

Cause. The file containing the program you wish to run has been partially altered or destroyed.

Action. Recopy the program from your original write-protected disk.

Insufficient memory

Cause. You are trying to load a SYLK file or saved worksheet which contains more data than your computer's memory can handle, resulting in an incomplete worksheet.

Action. See "Memory Management" in the "Managing Files and Memory" section for guidelines on keeping worksheet data to a size your computer can handle.

INSUFFICIENT MEMORY

Use SAVE to store essential information.

Then QUIT and restart program.

Reduce data size by modifying the information you re-LOAD.

Cause. The Cash Plan program has run out of storage space—it has no space left for more information.

Action. If you wish to save the information you have entered so far, carry out the Save command. Then carry out the Quit command. Restart the program, load the responses you saved, and modify your answers to the questioning sequence (see "Memory Management" in the "Managing Files and Memory" section for details on conserving memory.)

Insufficient memory for load

Cause. An attempt was made to run a Cash Plan program on a system with insufficient memory.

Action. Consult your owner's manual to see how to configure your system for at least the minimum memory requirements.

Integer value required

Cause. You have entered a number that is not an integer where an integer is required.

Action. Enter an integer.

Integer value required—minimum *number*, maximum *number*

Cause. The number you entered was outside the range of values allowed or not an integer.

Action. Enter an integer greater than or equal to minimum *number* and less than or equal to maximum *number*.

Load from undefined or null filename

Cause. You have requested that responses be read from a file but have entered an illegal filename; or you have not entered a filename.

Action. Carry out the Load command again and enter the name of the file containing your previously saved responses.

LOAD responses from file: *filename*

Cause. You have executed the Load command.

Action. If the proposed *filename* contains the responses you wish to load, press the RETURN key. If not, enter the name of the file containing the previously saved responses, or press CANCEL to cancel the command.

Locked cells may not be changed

Cause. You are trying to edit or enter a value or formula into a locked cell.

Action. To change the value of a cell, change the value of the unlocked cells on which its value depends.

More to come, press TAB to continue . . .

Cause. All of the information to be displayed cannot fit onto one screen of a 40-column display.

Action. When you are ready to see the rest of the information, press the TAB key.

Name not defined: *worksheet name*

Cause. You are loading a SYLK file or saved worksheet which externally copies a named area from another saved worksheet. The saved worksheet does not contain an area with the given name.

Action. Make sure you have instructed the questioning sequence to copy values from the correct saved worksheet or that you gave the correct name for the area.

Number out of range—minimum *number*, maximum *number*

Cause. You have entered a number that is either too small or too large.

Action. Enter a number greater than, or equal to minimum *number* and less than, or equal to, maximum *number*.

Numeric value required

Cause. You have entered a non-numeric value where a number is required.

Action. Enter a number.

Overwrite existing file?

Cause. You are trying to save a worksheet or response file under a filename that already exists.

Action. If you do not want to save the information in the old file, type *Y* and it will be replaced. Otherwise, cancel the command, then save the file under a different name. (Always make sure that the Transfer Options command is set to “Normal” when saving worksheets.)

Press return to resume program

Cause. You are using the Help command and are reading the last screen of information.

Action. When you are finished reading, press the RETURN key and the same screen on which you asked for Help will reappear.

Press return to view remaining text.

Cause. You are using the Help command which displays two screens of information on most terminals, or you are viewing a long block of text on a machine with a 40-column display.

Action. Press the RETURN key to view the next screen of text.

Press tab to edit responses on screen

Cause. The pointer is on the command line.

Action. If you wish to add, delete, or modify any of the responses shown on the screen, press the TAB key. This will move the pointer to the first response field.

Press tab to move to command line

Cause. The pointer is currently located in the response area of the screen.

Action. If you have completed your responses for this screen, or if you wish to execute a command, press the TAB key. This will move the pointer to the command line.

Program Error *nn.nnn*

Cause. An error in the program has occurred.

Action. Copy the numbers that appear on the screen and document the steps that produced the error, then contact Microsoft.

QUIT:

Enter Y to confirm

Cause. You chose the Quit command.

Action. If you want to quit, type Y. If not, cancel the command.

Reading line *n*

Cause. You have commanded Multiplan to load a SYLK file.

Action. None. Multiplan is loading the SYLK file. (It takes longer to load a SYLK file than a saved worksheet.)

Response too long—limit *number*

Cause. The response you are trying to enter is longer than the maximum length allowed.

Action. Modify the response so that it contains *number* characters or less.

SAVE responses in file: *filename*

Cause. You carried out the Save command.

Action. If you wish to have your responses saved under the proposed *filename*, press the RETURN key. If not, type the filename you want, or press CANCEL to cancel the command.

Save to undefined or null filename

Cause. You have requested that your responses be saved in a file, but you entered illegal characters in the filename; or you did not provide a filename.

Action. Carry out the Save command again and enter a valid filename.

Select option or type command letter

Cause. The Cash Plan program is waiting for your choice from a list of command options.

Action. Select one of the items on the command line by moving the pointer to it with the spacebar and BACKSPACE keys, then pressing the RETURN key. Or just type the first letter of the command you want.

Shapes of areas do not match

Cause. You are loading a SYLK file or saved worksheet which externally copies an area from another saved worksheet, but the source and target areas do not match.

Action. Make sure the worksheet or file from which you are copying has the same number of periods or intervals as the worksheet copying it.

**Symbolic Link (SYLK) file is complete.
Use QUIT to exit program.**

Cause. A SYLK file has been created from your responses to the questioning sequence.

Action. To quit, use the Quit command. Otherwise, choose another command.

System file error

Cause. While trying to read or write a file, Cash Plan encountered a serious error by the operating system.

Action. Try the command again. If the same error message appears a second time, restart MS-DOS and then start Cash Plan. If the error still occurs, the disk has been damaged. If you are writing a file to disk, try using a blank, formatted disk.

Type an 'x' beside each choice

Cause. The Cash Plan program is waiting for your choices from a list of possible selections.

Action. Select the appropriate responses by moving the pointer to each of them using the RETURN key, the Down key or Up key. Type an *x*, then go on to the next response. When all of the responses you want are filled in, use the TAB key to move the pointer to the command line.

Type an 'x' beside one choice

Cause. The Cash Plan program awaits your choice from a list of options.

Action. Select one of the responses by moving the pointer to it with the RETURN key, Down key or Up key. Type an *x*, then use the TAB key to move the pointer to the command line. Do not try to delete an *x* after a choice you do not want. It will automatically disappear after you make your choice.

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Introduction

The Microsoft® Multiplan® applications are productivity tools that help you analyze financial data by providing convenient, preprogrammed formulas that you can adapt to the unique demands of your business.

We have designed Microsoft Cash Plan to help you, the financial manager. You enter financial data and Cash Plan combines the information to create worksheets. You can change the data in the worksheets to reflect changes in company cash flows. Or, you can predict the results of changes in the company's priorities or plans.

Cash Plan is easy to use. The program asks, in plain English, for the information it needs, then works with Multiplan to build a worksheet based on your responses.

Cash Plan is professional. Leading authorities in finance and accounting designed the worksheets.

Cash Plan is powerful. You concentrate on entering and evaluating your financial data, and Cash Plan sets up the mathematical models and formulas for you.

Introduction

Microsoft Cash Plan consists of worksheet questioning sequences. The first questioning sequence, Cash Collections from Sales, displays questions about cash receipts from sales and when these sales occur.

The second questioning sequence, Cash Payments for Materials and Merchandise, displays questions about cash payments for purchases of materials or merchandise, and when these payments occur.

The third questioning sequence, Cash Payments for Operations, displays questions about operating costs, such as labor, marketing, and administrative overhead.

The fourth questioning sequence, Nonoperating Cash Flows, requires information about expected payments to or receipts from investors. You can also record or project payments and receipts for investments which are not part of ordinary operations.

The fifth questioning sequence, Cash Budget, combines the results from the first four questioning sequences to forecast each period's expected cash surplus or deficit. When loaded into Multiplan, the Cash Budget worksheet will display all anticipated sources and uses of cash.

After the questioning sequence is complete, you create a Symbolic Link (SYLK) file. Cash Plan sets up formulas and builds a worksheet for you. The worksheets are in Symbolic format so that they can be loaded into Multiplan.

These five worksheets are designed to allow you to evaluate the effects of different choices easily, to update your information to reflect unexpected events, and to revise your plans accordingly.

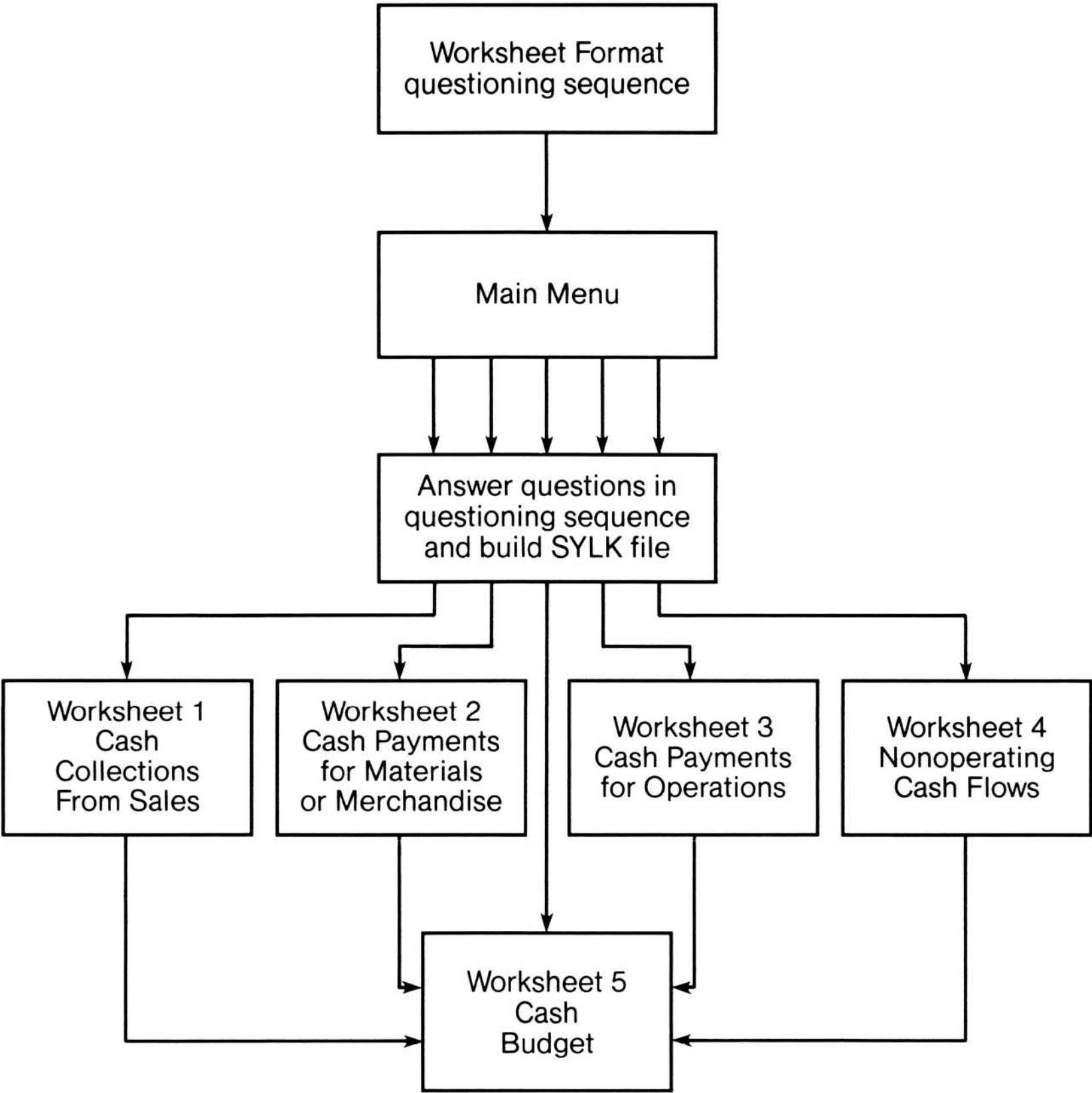


Figure 1. Microsoft Cash Plan Worksheets

Getting Started

This section tells you what you need and what you should do before using Microsoft Cash Plan. It covers the following topics:

What You Need

How to Format Disks

How to Copy the Cash Plan Disks

How to Run the Install Program

How to Start Cash Plan for the First Time

What You Need

To use this Multiplan application, you need:

1. A computer with at least 128K of memory and 40-, 80-, or 132-column display.
2. At least one disk drive, though two are recommended.
3. An MS[™]-DOS operating system disk.
4. Microsoft Multiplan for the MS-DOS operating system.
5. The Cash Plan Boot disk.
6. The Cash Plan Program disks: Cash and Learn.
7. Several blank disks.

How to Format Disks

Before you start Microsoft Cash Plan, format several blank disks as system disks using the MS-DOS FORMAT /S command.

A *system disk* is a formatted disk that contains the MS-DOS operating system. By putting your Cash Plan programs and data onto system disks, you avoid having to change disks to start MS-DOS and the Cash Plan programs.

Use the MS-DOS FORMAT command to format several blank disks as data disks. You can use these disks for storing your files. See the FORMAT command in your MS-DOS manual for instructions on how to format disks.

How to Copy the Cash Plan Disks

The Cash Plan Boot disk contains the programs and files needed to run the program and to install Cash Plan for your computer terminal. The Learn Program disk contains the programs and files needed to learn the Cash Plan program. The Cash Program disk contains the programs and files needed to answer the questioning sequences and to create the Cash Plan worksheets.

Disks can be damaged by heat, dust, magnetism, and careless handling. Eventually they will wear out. To protect your data in case of accidental damage to the disks, make copies of these disks, and then use the copies to run the program.

Use the MS-DOS COPY command to copy all programs and files from the Cash Plan Boot and Program disks to the system disks you have formatted. Label your copies of the Cash Plan disks and use them.

Warning

Do *not* use the MS-DOS DISKCOPY command. It will erase the MS-DOS operating system from the destination disk.

If you have double-sided, double-density disk drives, you may be able to put all of the files onto one disk. Use the MS-DOS FORMAT /S command to format a blank disk as a system disk. Then use the MS-DOS COPY command to copy all of the files from each of two Cash Plan Program disks onto a new disk. See your MS-DOS manual for more information on how to format and copy disks.

How to Run the Install Program

Microsoft Cash Plan needs information about how your terminal works to run correctly. The Install program already has information on many popular terminals. Install inserts this information into the Cash Plan program.

You need to run the Install program only once. When you run the program, Install displays questions about your terminal. You enter information about your terminal, and the Install program updates Cash Plan for your terminal.

The Install program is on the Cash Plan Boot disk. To run the Install program:

1. Put your copy of the Cash Plan Boot disk in the startup drive, then start MS-DOS. (The startup drive is the drive from which you start the program.) The system prompt A> (or B> or C> for multiple-drive systems) should appear on the screen.
2. Type:

INSTALL

3. Press the RETURN key.

The text on the screen describes the Install program.

4. Press any letter key.

Install displays a list of terminals. You may need to press the RETURN key to see more of the list.

5. If your terminal is listed, type the number that corresponds to your terminal and press the RETURN key.

If your terminal is not listed, see “Defining Your Terminal With Install” in the “Operating Information” section of this manual.

6. When the Install program is finished, it displays:

Install complete

Important

If you make a mistake while running the Install program, press CTRL-C to exit the program. Run Install again from the beginning. If you have any trouble with the Install program, see “Defining Your Terminal With Install” in the “Operating Information” section of this manual.

After you run the Install program, use the MS-DOS COPY command to copy the XP.COM program from your copy of the Cash Plan Boot disk onto all of your copies of the Cash Plan Program disks. XP.COM contains the information Cash Plan needs to run on your terminal.

How to Start Cash Plan for the First Time

To run Cash Plan you need copies of the Cash Plan Program disks with the XP.COM file on them, plus several formatted disks for storing data.

To start Cash Plan:

1. Put the Learn Program disk in the startup drive.
2. To use the Learning Case, type

XP LEARN

and press the RETURN key. The Learning Case will begin.

Turn to the “Learning Cash Plan” section of this manual and start the Learning Case. The Learning Case will teach you how to use Microsoft Cash Plan.

Note

MS-DOS translates lowercase to uppercase. You can use all uppercase letters, all lowercase letters, or any combination. MS-DOS regards them as the same.

The Keyboard

In the Multiplan applications, some keys have special names. These names describe what the keys do rather than what appears on the key itself. For example, CANCEL is the name for a key that lets you stop what you are doing at the moment. Some terminals have a key labeled CANCEL. On some terminals, you press a key labeled ESC to cancel what you are doing. On other terminals, you hold down the CONTROL key and press C.

If your terminal has Up and Down direction keys, they move the pointer (the highlighted area on the screen that indicates your current position). If not, other keys or combinations of keys move the pointer.

If you have an IBM® Personal Computer, refer to the Keyboard Diagram in the Worksheet Folder at the back of this manual for a description of which keys perform common functions.

The following is a list of the basic Multiplan application functions and the keys that perform these functions.

Standard Keys

Up	CTRL-E, ↑
Down	CTRL-X, ↓
Tab to command line	TAB, CTRL-I
Home	CTRL-Q
End	CTRL-Z
Cancel	CTRL-C
Do this command	RETURN, CTRL-M
Select next command on command line	Spacebar
Select previous command on command line	BACKSPACE, CTRL-H
Delete	DELETE, CTRL-Y
Backspace	BACKSPACE, CTRL-H
Character Left	CTRL-K
Character Right	CTRL-L

Keys for Other Terminals

If you have one of the terminals in the following list, you will find that different keys perform some of the functions. The variations are outlined in the following list.

ADM-3A®, ADM-5 TeleVideo® 910/912/920


Backspace	CTRL-U
Select previous command on command line	CTRL-U
Character Left	CTRL-V
Character Right	CTRL-B

Altos® II

Home	HOME
Cancel	ESC
Help	HELP
Delete	DEL LINE, DEL CHAR
Character Left	F13
Character Right	F14

All ANSI Standard Terminals

Use the SHIFT key to enter numbers on the keypad.

 Character Left	Keypad 7
Character Right	Keypad 9

The Keyboard

Burroughs ET-2000™ Computer

Cancel	ESC
Character Left	F1
Character Right	F2
Help	HELP, F10
Home	HOME, CLR
End	F9

Compaq™ Computer, Columbia Data Products MPC®, Corona PC™

End	END
Cancel	ESC
Character Left	F1
Character Right	F2
Help	F10

Datavue® 132/c

Cancel	ESC
Delete	F3
Character Left	F2
Character Right	F4
Backspace	CTRL-U
Help	F8

DEC® Rainbow™ 100

Cancel	CANCEL
Return	DO
Character Left	PF1
Character Right	PF2
Help	HELP
Home	MAIN SCREEN
End	EXIT

DEC® VT™-100

Character Left	PF1
Character Right	PF2

Dynalogic Hyperion

Cancel	ESC
Home	HOME
End	END
Character Left	F6
Character Right	F7
Delete	DEL
Help	F10

The Keyboard

Eagle® 1600

Home	HOME, TOP (F7)
End	END (F8)
Cancel	ESCAPE
Help	HELP
Backspace	INS, F15
Character Left	F1
Character Right	F2

Grid™ Compass Computer™

Cancel	ESC
Delete	code-DELETE
Character Left	F9, SHIFT-←
Character Right	F10, SHIFT-→
Help	code-?
Home	F5, code-SHIFT-↑
End	F6, code-SHIFT-↓

Hazeltine Esprit™

Backspace	CTRL-U
-----------	--------

Heath®/Zenith® H19

Use the SHIFT key to enter numbers on the keypad.

Character Left	IC (Keypad 7)
Character Right	DC (Keypad 9)
End	F5
Cancel	ERASE
Help	RED

Honeywell® microSystem 6/10

Cancel	ESC
Delete	DELETE
Character Left	F1
Character Right	F2
Help	F10
Home	HOME
End	END

Olivetti M20 L1 (ANSI Mode)

Character Left	Command-1
Character Right	Command-2
Delete	Command-9
Help	Command-0

The Keyboard

Televideo 910+

Backspace	CTRL-B
Select previous command on command line	CTRL-B
Character Left	CTRL-U
Character Right	CTRL-J

Televideo 925/950

Cancel	F1
Backspace	CTRL-B
Select previous command on command line	CTRL-B
Character Left	F2, CTRL-U
Character Right	F3, CTRL-J
Help	F11

Texas Instruments Professional Computer

End	F9
Cancel	ESC
Character Left	F1
Character Right	F2
Help	F10

Wang Professional Computer

Cancel	CANCEL
Return	EXEC
Character Left	FORMAT
Character Right	MERGE
Help	HELP
Home	HOME
End	Super/subscript key

Zenith Z100

End	F9
Cancel	ESC
Character Left	F3
Character Right	F4
Help	HELP

Operating Information

You will find the information in this section useful if your terminal is not listed by the Cash Plan Install program.

Defining Your Terminal With Install

If your terminal is not listed by the Install program, you can define your own terminal. Refer to the manual that came with your terminal to answer the questions displayed by Install. Then follow this five-step procedure to run the Install program.

1. Start the Install program.
2. Answer the questions about your terminal that are displayed on the screen.
3. Review and edit your answers.
4. After reviewing your answers, run the terminal tests. These tests will let you know whether you have answered the questions correctly. If one of the tests fails, go back and edit your answers, then run the test again.
5. Once you have run all of the terminal tests successfully, the Install program adds your terminal definition to the Multiplan application XP.COM file.

Figure 2 illustrates how the Install program works.

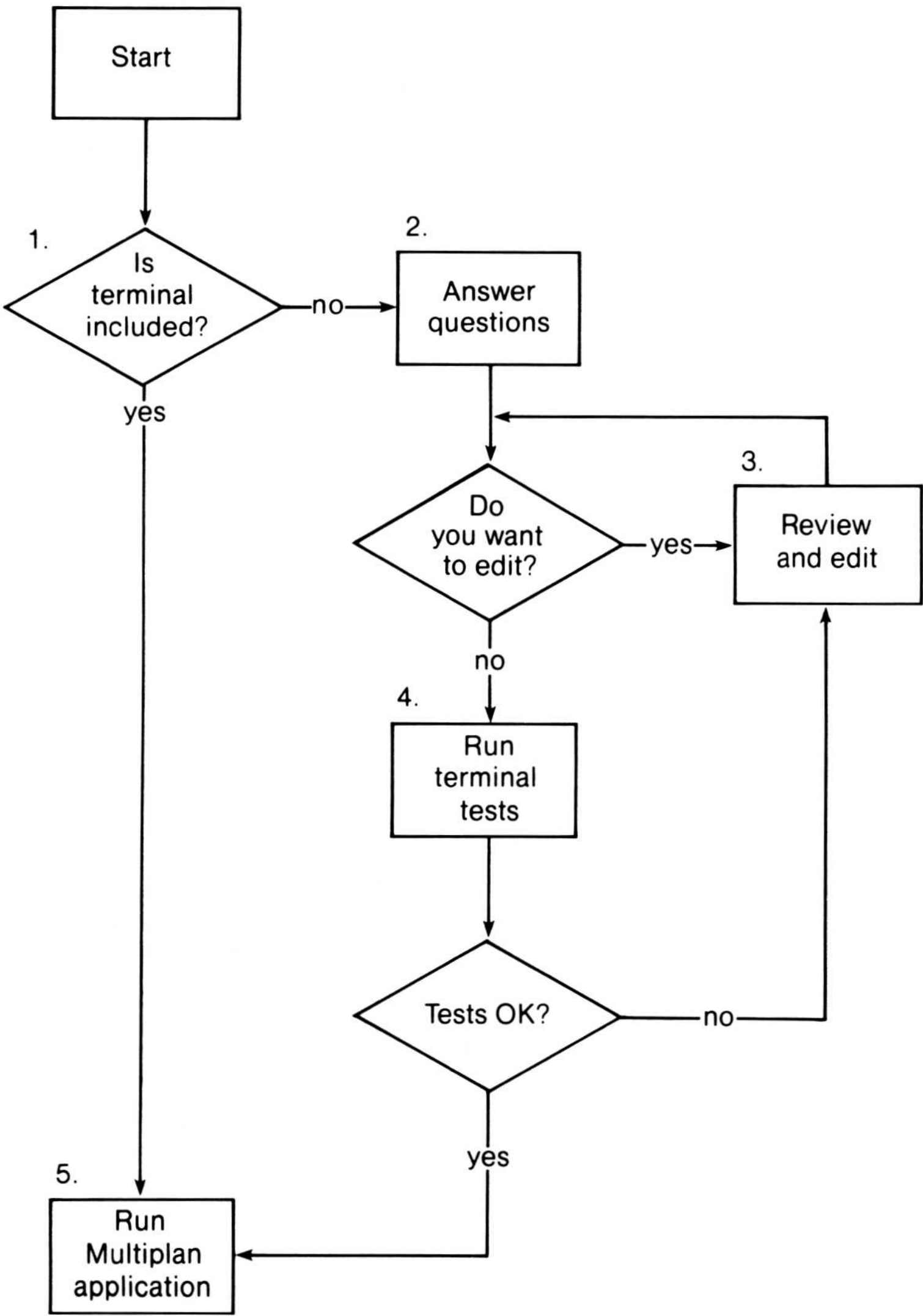


Figure 2. The Install Program

Start Install

1. Put your Cash Plan Boot disk into the startup drive and then start MS-DOS. The system prompt should appear on the screen.

2. Type:

INSTALL

3. Press the RETURN key.

The text on the screen describes the Install program.

4. Press any letter key.

Install displays a list of terminals. If your terminal is not listed, press the RETURN key to display more of the list.

5. If your terminal is on the list, type the number corresponding to your terminal and press the RETURN key.
6. If your terminal is not on the list, press *1* and then the RETURN key to define your terminal.

Install will display questions about your terminal.

Answer Questions

1. Install asks if you want to define your own terminal. If you wish to do so, type *Y* and press the RETURN key.
2. Install asks if you want to go through the questions sequentially. Because some of the questions are not related to this Multiplan application, backspace over the existing *Y* and press the *N* key.

3. Press the RETURN key.

The following menu will appear:

1. Program Function Keys
2. Graphics
3. Clear Screen
4. Position Pointer
5. Initialize terminal
6. Reset terminal
7. Screen attributes
8. Reverse Video
9. Keyboard Click On
10. Keyboard Click Off
11. Pointer on
12. Pointer off
13. Sound Bell
14. Number of rows
15. Number of columns
16. Terminal name

If you are running Install for the first time, choose all of these except number 2, which does not pertain to this Multiplan application. You *must* answer the questions on pointer positioning. If you don't answer these questions, the Multiplan application will not run.

If you do not answer the other questions, the full features of the Multiplan application display will not be used but the program should still run. Answers to all of the questions can be found in your terminal manual.

Install proposes answers to most questions. To accept a correct answer, just press the RETURN key. To change the answer, backspace over the proposed answer, and type your response. Then press the RETURN key.

Install displays these characters to indicate what type of answer it needs:

- (I) Integer. Use only number keys.
- (Y/N) Yes or No. Answer with Y, y, N, or n.

(S) Character String. Enter a sequence of characters. You can code special keys with the two prefix characters: ^ and &. When you see the (S) prompt you can type &M to see this menu of prefix characters:

There are two prefix characters: ^ is for coding control characters. & is for the characters listed below.

&E	escape
&N	newline
&F	formfeed
&R	return
&T	tab
&B	backspace
&X	rubout
&^	^
&&	&
&,	,
&+	+
&Dxxx	three digit decimal (less than 256)
&Oxxx	three digit octal (less than 0400)
&Hxx	two digit hex
&P&Hxx	pause xx (hex) milliseconds
&ly&Dxxx	pad character 'y', xxx times
&Y	used to code a Y after a CTRL-C

Note

The millisecond timing of a pause is for an 8 MHz clock. If you have a 4 MHz clock, divide the value by two. If you have a 2 MHz clock, divide the value by four.

For example, Install may ask,

What sequence of characters start highlighting?

Type &EP if the answer is ESCAPE-P.

Type ^K if the answer is CONTROL-K.

Install also asks you about key assignments. These questions have the (S) prompt. You can assign special keys on your terminal to Multiplan application functions. For example, if you want the Up direction key to move the pointer to the previous response field, then you must assign this upward movement to the up arrow key. You don't have to assign special keys because control characters perform most of the screen functions. The following special keys listed by Install are not used by the Multiplan application:

Right direction key	Page right
Left direction key	Next cell
Word left	Reference
Word right	Recalc
Next window	Up scroll
Page up	Down scroll
Page down	Left scroll
Page left	Right scroll

When you are prompted to define character sequences for these keys, simply press the RETURN key. Default character sequences for the other function keys are listed in "The Keyboard" section. HOME moves the pointer to the top response field. END moves it to the command line.

Review and Edit Answers

You can review and edit all answers before installing the terminal characteristics in the Multiplan application program file. Install displays a menu listing questions and their current or proposed responses. To change a response, type the question number and press the RETURN key. Then answer any questions Install asks.

Run Terminal Tests

Install runs eight terminal tests. During the tests, press CTRL-C to return control to the Install program. The test options are:

1. Pointer positioning. No scrolling should occur during this test.
2. Clearing the display.

3. Initialization for the Multiplan application.
4. Function keys. Press any key except RETURN to test. If you assigned RETURN to another key, pressing this other key terminates the key assignment test.
5. Screen attributes. If the terminal does not have “inverse” video (black characters on a white background), brackets are placed around highlighted fields.
6. Pointer and key click options.
7. Sounding the bell.
8. Graphics characters.
9. All of the above.

Omit test number 8. If all of the other terminal tests end successfully, Install adds the description of your terminal to the Multiplan application. When it is finished, Install displays:

Install complete

If any of the tests fail, press CTRL-C. Install again asks you questions about your terminal. Check your terminal manual and change any incorrect responses. Then run the terminal tests again.

Terminal Customization

After all the tests have been run, Install adds your terminal definition to the Multiplan application file XP.COM.

After you have run the Install program, use the MS-DOS COPY command to copy the XP.COM program from your Multiplan application Boot disk onto each of your copies of the Multiplan application Program disks.

Part 2

Cash Planning

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Cash flow is vitally important to every company. To succeed in the long run, a company must operate profitably, providing owners with a return on their investment. To survive in the short run, the company must also remain solvent. It must avoid disastrous cash shortages by generating enough cash inflows to cover its cash outflows, and it should invest excess cash wisely and profitably.

The process of anticipating and planning a company's cash flows is called cash budgeting. A cash budget summarizes all cash inflows and outflows from every source expected during the budget period.

A cash budget can be a very valuable tool for the manager. By carefully anticipating and planning cash inflows and outflows, the manager can often avoid cash shortages and invest temporary cash surpluses wisely.

The Cash Budget Process

Cash budgeting is just one step in a company's overall budget process. Before a cash budget can be prepared, goals and objectives must be established, budget periods and intervals must be determined, and an operating budget must be prepared. Only after the operating budget is agreed upon can a meaningful, useful cash budget be prepared.

Goals are general statements about the desired future position of a company. They are generally motivational in nature and are not quantified.

Objectives are quantitative performance targets, specifically defined for a particular time period. Success in terms of the objectives should lead to attainment of the company's goals.

An operating budget translates the company's goals and objectives into detailed, quantified, financial plans. A cash budget restates the company's financial plans in terms of actual cash flows.

Budget Periods and Intervals

Most companies use a one-year (12-month) period for operating budget purposes. A one-year budget period is also appropriate for cash budgeting purposes. This period is short enough to be useful for immediate cash planning purposes, but long enough to force planning for future needs. Cash budgeting beyond one year is not recommended, because it is usually difficult to project cash flows accurately more than a year in advance.

You can also break your budget period into shorter budget intervals. If you use a one-year budget period, you should use a one-month budget interval. If you select a longer budget period, you may want to use three months as your budget interval.

Forecasting Cash Flows

A cash budget restates a company's plans in terms of actual cash inflows and outflows. To be an accurate and useful planning tool, a cash budget should include all anticipated sources (inflows) and uses (outflows) of cash, along with any resulting cash shortages or cash surpluses.

If you have already used Microsoft® Budget to prepare an operating budget for your company, use that Multiplan® application's results as your starting point. Microsoft Budget includes separate worksheets for projecting sales, manufacturing costs, and other operating costs. The fifth worksheet of Microsoft Budget is an operating budget.

Forecasting cash flows requires the manager to identify every source of cash entering the company and every use of cash leaving the company. Each source and use of cash must be analyzed to determine the amount of the cash flow and the period in which the cash is received or disbursed. Once all sources and uses of cash are identified and analyzed, they can be summarized in the cash budget. At this point, cash shortages and surpluses can also be identified.

Major cash flows which should be considered are:

Cash collections from sales

Cash payments for materials or merchandise

Cash payments for operations

Nonoperating cash flows

Income taxes

Each of these cash flows may be significant for your company. If so, then you will probably want to use all five of the Microsoft Cash Plan worksheets.

However, you are not required to use all of the worksheets. You may prefer to use only one or two of the worksheets to analyze the cash flows that are most important to your company.

The next section provides a general discussion of these major cash flows. They are described in greater detail in the discussions of the worksheets that make up Microsoft Cash Plan.

Worksheet 1: Cash Collections From Sales

A company's primary cash inflow is from sales of goods or services. Cash collections from sales depend on the amount of sales and the timing of cash collections for those sales. To forecast cash collections, projected sales must be analyzed to determine when the cash related to those sales will actually be received. For cash sales, collection is immediate, but for credit sales, there may be delays of 30 days or more between the sales and the related cash collections.

In establishing its sales policies, a company's aim is to produce the greatest profit possible. Profit depends on sales volumes and profit per unit as well as the timing of cash collections from sales. The timing of cash collections is important because when cash is received, it can be invested to earn interest revenue, or it can be

used to reduce debt and avoid interest expense. Your company's sales policies affect sales volumes, profit per unit, and cash collections through the following variables:

Product sales price

Credit policy

Finance charges your company applies to past due accounts

Sales discounts allowed to customers who pay promptly

Returns and allowances for returned or defective merchandise

Other goods and services provided with the main product

Method of collections

Each of these variables must be considered when you forecast cash collections from sales. Each variable is discussed in "Worksheet 1: Cash Collections From Sales."

Worksheet 2: Cash Payments for Materials or Merchandise

For manufacturers, wholesalers, and retailers, the primary cash outflow is for purchase of materials or merchandise. Manufacturers purchase raw materials, convert them into finished goods, and sell the finished goods to their customers. Wholesalers and retailers purchase and resell merchandise which is ready for consumption. The largest single cash outflow these companies have is for purchase of materials or merchandise.

Note

Service companies, on the other hand, sell services rather than goods. Many service companies do not purchase materials or merchandise at all. For these companies, expenditures for operations are far more significant. Therefore, "Worksheet 3: Cash Payments For Operations," is more pertinent for a service company.

Cash payments for materials or merchandise depend on amounts of materials or merchandise purchased and the timing of cash payments for those purchases. For wholesalers and retailers, forecast purchases of merchandise depend on projected sales and planned levels of inventories of products to be sold. For manufacturers, forecast purchases of materials depend not only on projected sales and planned levels of finished goods inventories, but also on levels of inventories of raw materials and on the rate at which raw materials are converted into finished goods.

Once purchases of materials or merchandise have been forecast, they must be analyzed further to determine when the cash related to those purchases will actually be disbursed. Forecast cash payments for materials or merchandise depend on both the amount of the purchases and the timing of related payments.

In establishing its inventory purchasing policies, a company must maximize profits. One way to maximize profits is by minimizing inventory costs (purchase cost, order cost, holding cost, capital cost, and stockout cost). These costs are described in detail in “Worksheet 2: Cash Payments for Materials or Merchandise.” Profits can also be affected by the timing of cash payments for materials or merchandise, particularly when interest rates are high. By delaying cash payments, a company can use its cash to pay off debt (avoiding interest expense) or to invest (earning interest revenue). Because a company’s inventory purchasing policies affect inventory costs and related cash payments, it must be carefully considered.

Worksheet 3: Cash Payments for Operations

Another major cash outflow is for the day-to-day operations of the company. Cash payments for operations depend on the amounts of the company’s operating expenses and the timing of cash payment for such expenses. Operating expenses are broken down into production costs, warehousing costs, administrative expenses, and selling expenses.

Production costs are all costs of manufacturing other than direct materials. These include direct production labor, indirect labor, and indirect materials.

Warehousing costs are the costs of storing materials or merchandise. They include warehousing labor and warehousing supplies.

Administrative expenses are the costs of managing the business. Administrative expenses include salaries, supplies, repairs and maintenance, taxes other than income taxes, and professional fees.

Selling expenses are the costs of selling the company's product and delivering it to the customers. Selling expenses include sales salaries, travel, delivery costs, and advertising and promotion costs.

Each type of operating cost should be analyzed and forecast separately. The amount of each operating cost may depend on sales levels, company policy, or external factors. Actual cash payments for these items depend on their absolute amounts and on planned timing of payments.

Worksheet 4: Nonoperating Cash Flows

Nonoperating cash flows are cash flows which are not directly related to the company's regular operations. For example, a company whose main activity is the sale of merchandise may also have interest income or income from rental property. Nonoperating cash flows depend on the absolute amounts of these earnings and expenditures and on the timing of the related cash payment or cash collection.

Nonoperating cash inflows include proceeds of new borrowings, proceeds from sale of property, plant, and equipment, additional investment by owners, income from investments, and sale of financial assets. Nonoperating cash outflows include repayment of borrowings, purchase of property, plant, and equipment, payments to owners, and purchase of financial assets.

Long-term financing and investing policies govern decisions about long-term debt and capital stock, the purchase and sale of property, plant, and equipment, and long-term investments. Such policies are part of strategic planning and should be defined when overall company goals are established. Short-term financing and investing decisions, however, are an important part of day-to-day management of the company and can be directly affected by current operations.

Worksheet 5: Cash Budget

The cash budget combines cash collections from sales, cash payments for materials or merchandise, cash payments for operations, nonoperating cash flows, and cash payments for income taxes. For each interval of the budget period, all cash inflows and cash outflows are combined to determine the net cash flow for the interval. If cash inflows are less than cash outflows, the company has a cash shortage. If cash inflows are greater than cash outflows, the company has a cash surplus for the interval.

Cash Shortages

Cash shortages may occur in profitable companies when cash payments for materials or merchandise or for routine operations must be made before cash from sales is collected. Cash shortages may be seasonal in nature, or they may be unexpected. A company will generally have enough cash on hand (in bank accounts or temporary investments) to cover such differences in the timing of cash inflows and cash outflows. If the company does not have sufficient cash available, it may face late payment penalties, loss of credit, or failure.

Preparing a cash budget can help a manager anticipate cash shortages and make plans to avoid them. If cash shortages are short-term and are expected to disappear within a few weeks or months, it may be possible to alter the company's immediate operating plans to avoid or reduce cash shortages. For example, the manager may be able to postpone an inventory purchase, temporarily reduce advertising expenditures, or accelerate some sales. He may also be able to change the company's short-term financing and investing plans, or arrange for short-term financing.

Of course, each of these alternatives must be carefully analyzed to determine their full effects. Each of the possible solutions suggested in preceding paragraphs may have unfavorable consequences. For example, postponing inventory purchases may result in stockouts and lost sales, or in higher purchase costs when the inventory is finally purchased. A temporary cash shortage may be avoided, but the other results may be equally unpleasant.

If cash shortages do not disappear within a short period of time, the manager must decide whether they are likely to disappear at all. If the company faces continuous, permanent cash shortages, it may be wise to sell, merge, or liquidate before the company fails. If, on the other hand, the manager expects the situation to improve and the cash shortages to disappear eventually, he may decide to alter the company's operating plans, or change its long-term financing and investing plans. For example, inventory levels could be reduced to decrease the company's cash payments. Long-term assets might be sold or a line of credit might be obtained from a bank in order to reduce the cash shortage. Once again, the effects of such measures should be considered carefully before a decision is made.

Cash Surpluses

Cash surpluses occur when the company has more cash on hand than it needs for routine operations. By preparing a cash budget, the manager is able to anticipate cash surpluses and make plans to invest them wisely. Cash surpluses do not threaten a company's survival, but how they are used can seriously affect profitability. By anticipating cash surpluses, the manager can make better investment decisions and maximize company profit.

If cash surpluses are temporary, the manager may decide to adjust operating plans to take advantage of the surplus. For example, he could decide to accelerate an advertising campaign or purchase inventory earlier than planned to take advantage of lower purchase prices. If the cash will be needed again within a very short period of time, the manager might decide instead to invest in short-term financial assets. If cash surpluses are large and continuous, the manager may decide to reduce long-term debt, purchase long-term assets, or increase dividends to shareholders.

Income Taxes

For most companies, income taxes are a significant cash outflow. Cash payments for income taxes depend on the company's taxable income and on the timing of tax payments. Companies with fiscal years that end on December 31 are required by law to make quarterly federal income tax payments in April, June, September, and December.

Summary

Short-term cash planning is essential for avoiding cash shortages and profitably investing cash surpluses. The major cash flows which must be forecast are:

Cash collections from sales

Cash payments for materials or merchandise

Cash payments for operations

Nonoperating cash flows

Income taxes

Microsoft Cash Plan analyzes these cash flows on five worksheets which are discussed in the following sections. The worksheets facilitate exploring various assumptions which are made in forecasting each cash flow. Analyzing the effect of changes in assumptions on cash flows is referred to as sensitivity or “what if” analysis.

Worksheet Format

Before you can use any worksheet in Microsoft Cash Plan, you must define overall worksheet format by using the Worksheet Format questioning sequence. Information needed to define worksheet format includes:

Company name

Length of the budget period and budget intervals

Maximum collection lag (for cash collections from credit sales)

Maximum payment lag (for cash payments for materials or merchandise or cash payments for operations)

Maximum production lag (for manufacturers)

Maximum number of future intervals' sales that merchandise or finished goods inventory levels depend upon

Maximum number of future intervals' production that raw materials inventory levels depend upon

Product names

Gross sales for each product

After going through the Worksheet Format questioning sequence, you should save the file containing this information so you can use it to define the format of each worksheet in Microsoft Cash Plan.

Worksheet 1

Cash Collections From Sales

The Cash Collections From Sales worksheet summarizes information about the inflow of cash from projected sales. Collections from sales are the largest source of cash for most companies. The Cash Collections From Sales worksheet presents collections from cash sales and collections from credit sales by product line. The worksheet also shows adjustments to cash collections for sales discounts, sales returns and allowances and finance charges.

Information You Will Need

Before you can use the Cash Collections From Sales worksheet, you must define worksheet format by using the Worksheet Format questioning sequence outlined in the preceding section, “Worksheet Format.” Worksheet format must be defined before any data can be entered.

When you use the Cash Collections From Sales questioning sequence itself, you must provide data on cash sales, the timing of cash collections related to credit sales, discounts, returns and allowances, and finance charges during the budget period.

Making Changes to the Worksheet

Changes to worksheet format (budget period and intervals, number and names of products, etc.) should be made by going back through the Worksheet Format questioning sequence. Changes to data (the actual numbers on the worksheet) can be made by going directly to the worksheet itself. If you make any changes to the Cash Collections From Sales worksheet, save the Multiplan worksheet that reflects those changes. The new results can automatically be copied to the overall Cash Budget worksheet once you have loaded it into Multiplan. This allows you to see the impact of changes in assumptions about cash collections from sales on your final results.

Changes may be made to reflect new information or to analyze variables related to the company's sales policy. These variables affect sales volumes and profit per unit as well as the timing of cash collections. You may examine the effects of changes separately or together.

The Cash Collections From Sales worksheet can be used to calculate the effects of changes in gross sales, credit policies, timing of credit sales collections, sales discounts, returns and allowances, and finance charges.

The following table summarizes the information you will need and tells how to make changes to the Cash Collections From Sales worksheet. The first time you use the worksheet, you must provide all of the required information by going through the Worksheet Format questioning sequence and the Cash Collections From Sales questioning sequence. Later on, you can change worksheet format by going back through the Worksheet Format questioning sequence. You can change data by going through the Cash Collections From Sales questioning sequence again, or by going directly to the worksheet itself.

Table 1
How to Change Worksheet
and Questioning Sequence Information

Required Information	Questioning Sequence		
	Worksheet Format	Cash Collections	Worksheet*
Company name	x		
Worksheet report name	x		
Budget period	x		
Budget intervals	x		
Names of products	x		x
For each product			
Sales revenue	x		x
Percentage of sales that are cash sales		x	x
Percentage of credit sales collected during each interval following the sale		x	x
Percentage of sales expected to be uncollectible		x	x
Percentage of sales to which sales discounts apply		x	x
Sales discount percentage		x	x
Sales returns and allowances as a percent of sales		x	x
For all products combined			
Finance charge percentage		x	x
First interval after sale to which finance charge applies		x	

* You can change data in this column by going directly to the worksheet.

How Cash Collections From Sales Information Is Used

The information you provide is used to determine total cash collections from sales during the budget period. The length of the budget period, budget intervals, and the number and names of products can be transferred to the rest of the worksheets automatically when they are loaded into Multiplan. Total adjusted cash collections can be copied directly to the overall Cash Budget worksheet.

Enter Program Name: cash

Cash Collections From Sales

Cash collections from sales depend on the amounts of sales revenues and on the timing of cash collections related to those sales.

Sales Revenues

Gross sales revenues are total revenues for all products at original sales prices. Basically, gross sales revenue for a product is determined by multiplying price per unit by sales volume. There are many ways to estimate gross sales revenues for each of your company's products. For example, you might project sales at the same levels as in prior periods. Or you might decide that estimates made by your company's marketing department are more accurate. Or you might decide to use a forecasting model which takes competition, general economic conditions, and other factors into account. The method you use depends on which one you feel will provide the best estimate of sales during the budget period.

If you have already used Microsoft Budget to prepare an operating budget for your company, you can use the gross sales revenue figure on the Sales Budget worksheet.

Timing of Cash Collections

Cash sales are sales for which the company receives cash upon delivery of the product. Cash collections from cash sales are immediate. However, most companies sell to customers on credit. Cash from credit sales is collected later. When using Microsoft Cash Plan, you must specify the percentage of sales that are cash sales. Cash Plan then subtracts cash sales from total sales to determine the amount of credit sales.

Collections of a given interval's credit sales usually extend over several intervals following the actual sale date (i.e., the date when goods are actually delivered or shipped), until the entire amount has been collected or has been determined to be uncollectible. Timing of collections should be stated in terms of the proportion of credit sales which are expected to be collected during each interval following the interval of the sale.

For bookkeeping convenience, many companies record sales when orders are received or when the bills are sent, rather than the actual sale date. In using the Cash Collections From Sales worksheet, the timing of cash collections from credit sales should be based on your company's actual sales date. A good way to determine the timing of collections is to analyze your company's past experience.

Uncollectible accounts are amounts owed by customers who, for various reasons, never pay you. Any company which grants credit is, unfortunately, bound to have some accounts which are uncollectible. Estimated uncollectible accounts should be based on your company's credit policy and past experience with credit customers.

Sales discounts are reductions in gross sales prices which are granted to encourage customers to pay in cash or within a short time after the sale. Sales returns and allowances are reductions in gross sales amounts for goods which are returned or defective. Past sales should be analyzed to determine the sales discount percentage, the percentage of sales to which discounts apply, and the amounts of sales returns and allowances. Sales discounts and sales returns and allowances affect cash collections primarily during the interval of sale. On the Cash Collections From Sales worksheet, the current interval's sales are reduced by the entire amount of sales discounts and sales returns and allowances related to those sales.

Finance charges are your company's interest charges on past due accounts. Consider your company's finance charge policy when projecting finance charges.

To illustrate these concepts, consider the case of Bay Company.

Sales revenues. Bay Company expects total gross sales of \$300,000 during March. Based on past experience, Bay expects 20% of total sales to be cash sales. This means that the remaining 80% are credit sales.

Collection of credit sales. After analyzing past cash collections from credit sales, Bay estimates that 25% of credit sales will be collected in the month of the sale, 30% will be collected in the first month following the sale, and 40% will be collected in the second month following the sale. 5% of credit sales are expected to be uncollectible.

Sales discounts. Bay Company’s discount terms are 2%/10, net/30 (i.e., a 2% discount is given to customers who pay within 10 days of the date of the sale.) Bay expects that 24% of all sales will be paid within the discount period.

Returns and allowances. Based on past experience, Bay expects about 1% of all sales to be returned.

Finance charges. Bay charges its customers finance charges beginning in the second month after the sale (i.e., for March sales, finance charges begin in May.) The finance charge rate is 18% per year, or 1.5% per month.

Based on all of the above, cash collections resulting from March sales are projected as follows:

March Sales Revenues

Total gross sales revenues	300,000	100%
Cash sales	45,000	15%
Credit sales	255,000	85%

Collection of Credit Sales

March	63,750	25%
April	76,500	30%
May	102,000	40%
Uncollectible	12,750	5%
Total credit sales	255,000	100%

Sales Discounts

2% discount on 24% of sales: $2\% \times 24\% \times 300,000 = 1,440$

Microsoft Cash Plan

Returns and Allowances

1% of sales: $1\% \times 300,000 = 3,000$

Finance Charges

$18\% \times 102,000 / 12 = 1,530$

Cash Collections From March Sales

	March	April	May
Cash sales	45,000		
Credit sales	63,750	76,500	102,000
	108,750		
Less: discounts	<1,440>		
returns and allowances	<3,000>		
Finance charges			1,530
Total cash collections	104,310	76,500	103,530

Budget projections should, in general, be based on your company’s past experience. However, if conditions have changed, projections should be adjusted to reflect the new conditions. For example, assume that your credit policy has been tightened, discounts for early payment have been increased, and finance charges on late payments have been raised.

Tighter credit policy means that standards for granting credit are tougher and that customers are screened more carefully before credit is extended. This should lead to fewer uncollectible accounts and a higher proportion of cash sales as compared to credit sales. Increased sales discounts provide customers more incentive to make cash purchases and encourage credit customers to make early payments, so collections within the discount should increase. Higher finance charges on past due accounts encourage credit customers to avoid the additional cost by paying their bills sooner.

If you have already used Microsoft Budget to prepare an operating budget for your company, you can use the discounts, returns, and allowances figures calculated by the Sales Budget worksheet.

Sales Policies, Profits, and Cash Collections From Sales

In establishing its sales policies, a company tries to maximize profits. In general, overall company profits depend on sales volumes and profit per unit. However, the timing of cash collections can also affect company profits. When cash is received, it can be used to pay off debt (to avoid interest expense) or it can be invested (to earn interest revenue). When interest rates are high, accelerating cash collections can increase profits dramatically by increasing revenue or decreasing interest expense.

A company's sales policies affect sales volumes, profit per unit, and the timing of cash collections from sales. Because the relationships between sales volumes, profit per unit, and the timing of cash collections from sales are complex, sales policies must be considered carefully. All reasonable alternatives must be evaluated in light of product demand, interest rates, the costs of implementing different policies, and any other relevant factors. Sales policy variables which may affect profitability and/or cash collections from sales directly are:

Product sales price

Credit policy

Sales discounts allowed to customers who pay promptly

Returns and allowances for returned or defective merchandise

Finance charges

Other goods and services provided along with the main product

Method of collections

Figure 1 illustrates the effects of the various sales policies on company profits. For example, you can see that sales price affects sales volumes and profit per unit, both of which impact company profits.

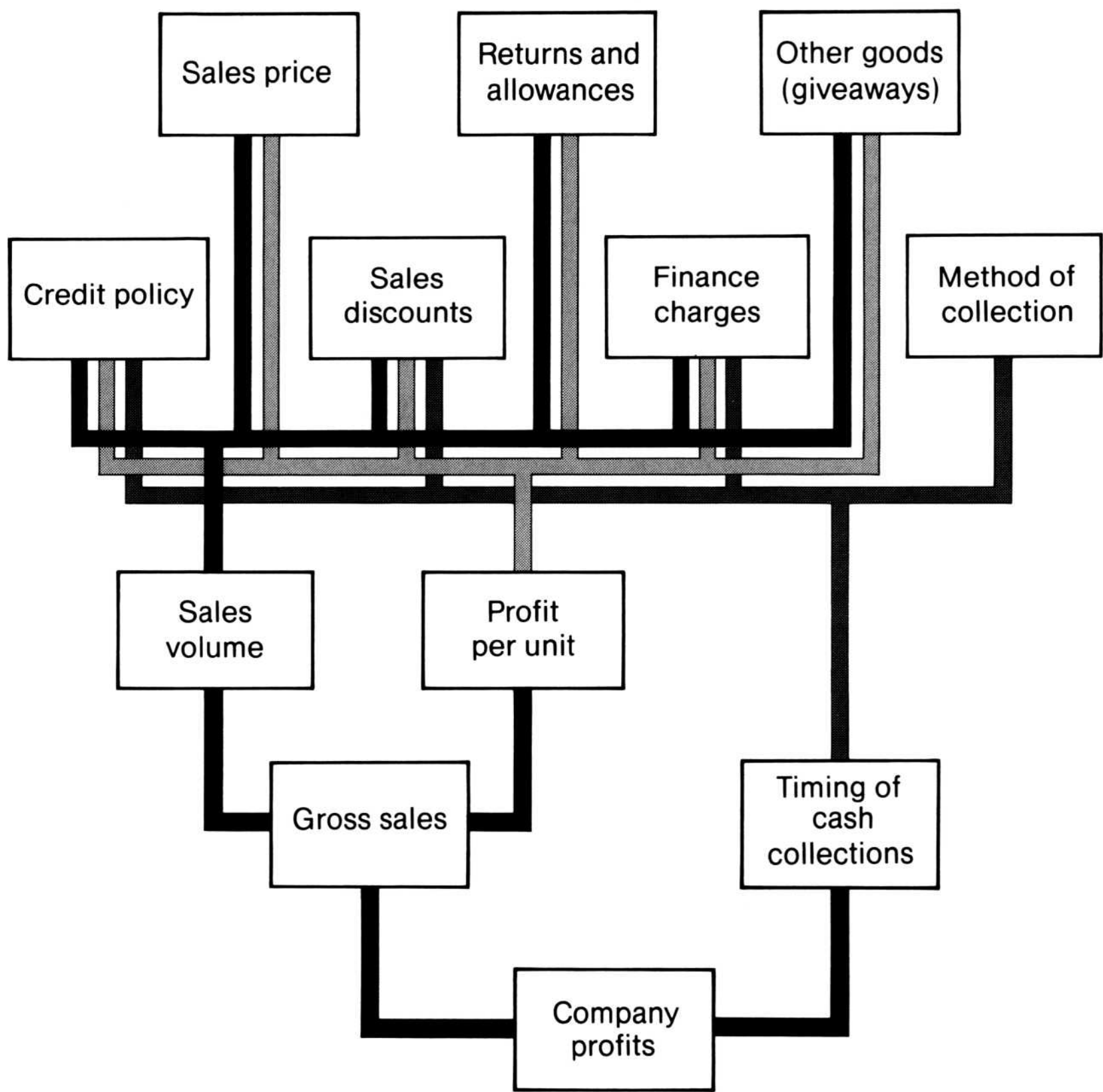


Figure 1. Sales Policies

Product sales price is a strategic variable. In a competitive industry, lower prices usually result in increased sales volumes and decreased profit per unit.

Credit policy determines which customers are allowed to buy on credit. Under a looser credit policy, standards for granting credit are more lenient, and the company is willing to grant credit to some customers who would not qualify under a tighter credit policy. This encourages customers who would otherwise not buy your product to buy on credit, and results in greater sales volumes. However, it also allows some customers who would have paid cash to use credit instead, so cash sales decrease and cash collections from sales slow down. Finally, because credit customers are not screened as carefully, more accounts are uncollectible, so profit per unit decreases.

Sales discounts allowed to customers who pay in cash or pay promptly encourage customers to pay their bills quickly. Most companies require customers to pay within a few days of the sale to qualify for a discount. A more generous discount will usually result in more cash sales and faster cash collections.

Returns and allowances policies allow customers to get refunds for merchandise which is returned or which is defective when received. Under a liberal returns and allowances policy, sales volumes will increase because customers know they can return the merchandise if they are dissatisfied. However, profit per unit will decrease because of increased shipping and handling charges.

Finance charges are interest charges on accounts which are past due. If a company raises its finance charge rate and begins to charge finance charges soon after the sale, finance charges will increase and cash collections will accelerate. However, sales are likely to decrease.

Other goods and services provided along with the main product include packaging, shipping, etc. More extras provided along with the main product will usually result in higher sales volumes but lower profit per unit.

The method of collection will not affect sales volumes or profit per unit, but it can affect the timing of cash collections. For example, if a company has its credit customers mail payments to regional offices or lock boxes, float can be reduced and cash collection accelerated. Float is the span of time from when the customer writes a check until your company receives the money.

Using the Worksheet

The Cash Collections From Sales worksheet uses the methods for entering amounts summarized in the following table.

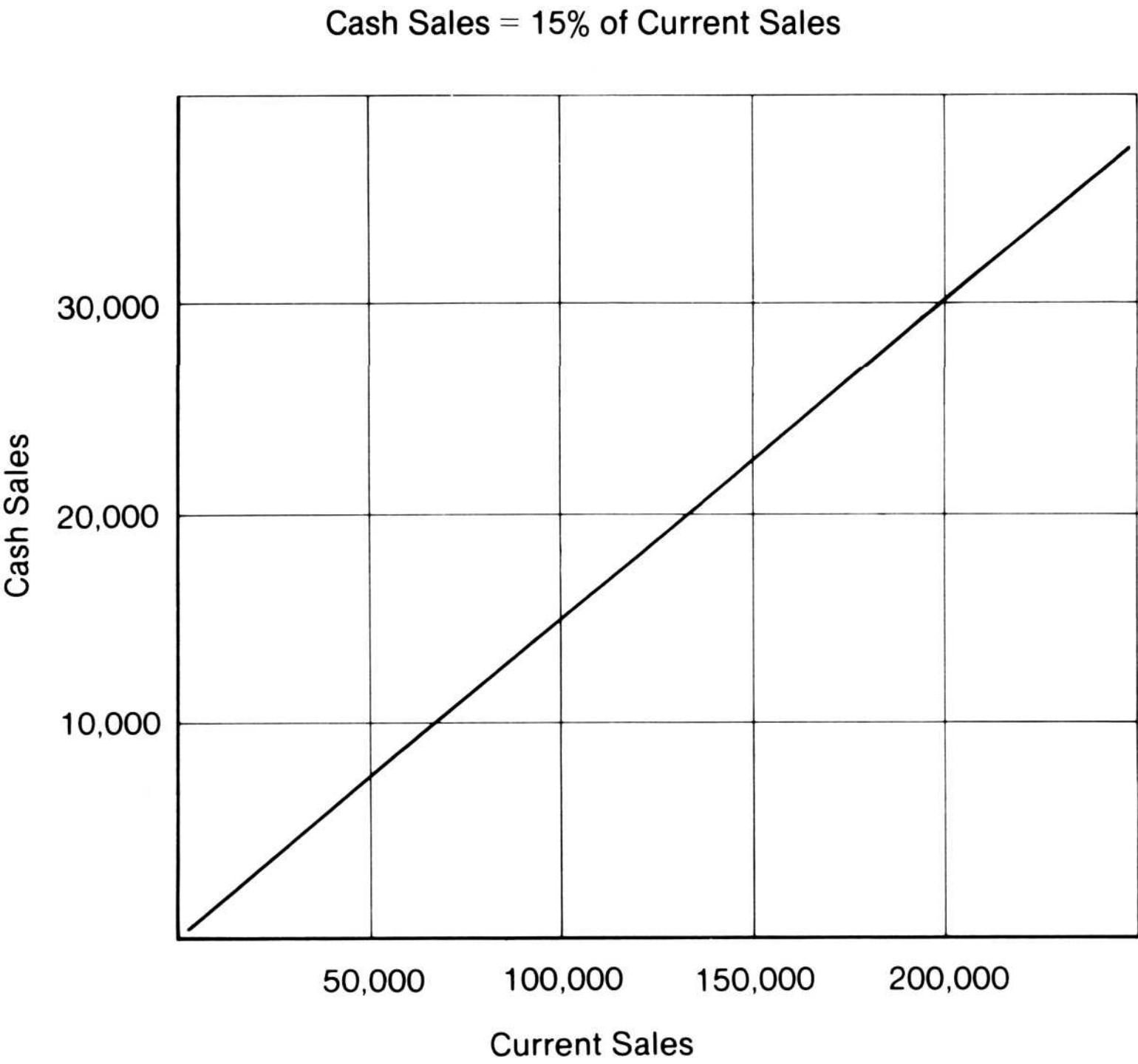
Table 2
Methods for Entering Amounts: Worksheet 1*

	Sales	
	Current	Credit
Cash sales	x	
Sales discounts	x	
Sales returns and allowances	x	
Finance charges		x

* Each method is outlined in the following sections.

Methods for Entering Amounts

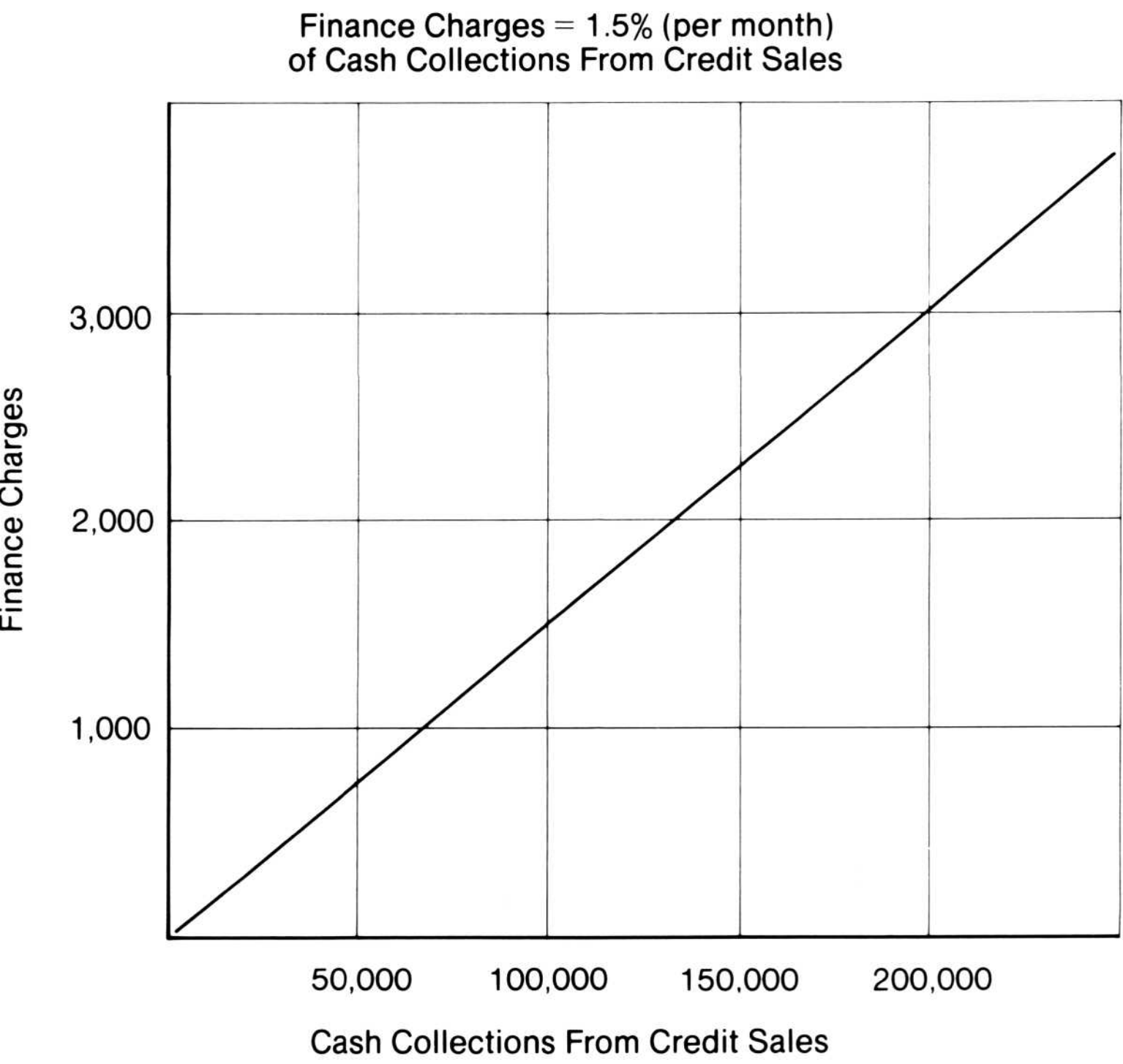
Cash sales, sales discounts, and sales returns and allowances must be specified as a percentage of current sales. Each of these items varies directly with the current sales level. This relationship is presented in the following graph:



To use this method, you must specify the amount of the item as a percentage of current sales.

Percentage of Credit Sales

Finance charges collected are calculated as a percentage of cash collections from credit sales at the time of collection. The amount of finance charges collected varies with the amount of cash collections from credit sales once finance charges begin to be applied. This relationship is presented in the following graph:



To use this method, you must specify the annual finance charge rate and the month after the sale when finance charges begin to be charged.

Collection Pattern for Credit Sales

The collection pattern for cash collections from credit sales should be specified as a set of percentages. For example:

	Interval	Credit Sales Collected
Interval of sale	0	20%
First interval after sale	1	60%
Second interval after sale	2	15%
Uncollectible	3	5%
		<hr/> 100%

Example Case

Bay Company manufactures fishing reels and sells both fishing reels and fishing rods. Over the past four years, the company has been quite profitable. However, several times the company has been short of cash and has had to obtain emergency loans. This year the company has decided to do short-term cash planning with Microsoft Cash Plan.

Budget Period and Budget Intervals

Joe Monda, the manager of Bay Company, has decided to set up a budget period of one-half year, with one-month budget intervals. This is quite suitable for short-term cash planning purposes.

Number and Names of Products

Bay Company manufactures one type of fishing reel. In addition, the company sells four types of fishing rods.

Bay Company’s sales tend to be slightly higher in the summer than during the rest of the year. Sales prices were recently raised to cover increases in raw materials costs caused by inflation. No changes in sales strategy or sales policies are planned. The economy is expected to improve slightly in the coming year.

Microsoft Cash Plan

Based on his analysis of the situation, Joe projects total gross sales for each product to be 12% higher than last period, reflecting the recent sales price increases and the expected improvement in the economy. Projected gross sales for the next six months are:

Month	Fishing Reels	Fishing Rods
January	\$300,000	\$160,000
February	320,000	160,000
March	315,000	170,000
April	340,000	180,000
May	355,000	190,000
June	365,000	195,000

Based on past experience, Joe expects 15% of gross sales for each product to be cash sales. Of the remaining credit sales, he expects 25% to be collected in the month of the sale, 27% to be collected in the first month after the sale, 30% to be collected in the second month, 10% in the third month, and 5% in the fourth month. The remaining 3% is expected to be uncollectible.

Finance charges are based on an annual interest rate of 18%. Terms are 2/10, net 30, so finance charges begin in the second month after the sale.

Bay Company offers a 2% sales discount to customers who pay in cash or within 10 days of the sale. Based on past experience, Joe expects discounts to be taken on 24% of gross sales for all products.

Returns and allowances have always been very low for Bay Company. Joe expects no returns or allowances for rods, and 1% of gross sales for returns and allowances of reels.

No other significant goods and services are provided along with the main product.

In order to estimate current collections, Joe also collects credit sales figures for the four months before the budget period. They are as follows:

Month	Fishing Reels	Fishing Rods
September	\$320,000	\$152,000
October	312,000	152,000
November	308,000	147,000
December	285,000	143,000

Joe entered all this information by going through the Worksheet Format questioning sequence and the Cash Collections From Sales worksheet questioning sequence.

Decision Analysis

Bay Company is concerned that a competitor may be able to take as much as 5% of their market. To see what effect this would have on cash collections from sales, Joe can prepare a revised Cash Collections From Sales worksheet. He would project sales for each interval at 5% less than before. On the revised worksheet, Joe could see how much cash collections decrease.

Bay Company is also considering increasing the sales discount for early payment to 3%. They don't expect this to have a significant effect on the percentage of cash sales or on the timing of collection of credit sales. Joe can prepare a revised worksheet, changing the sales discount percentage to 3%. The new worksheet would show him the effect of this change on cash collections.

Finally, Joe is concerned about the timing of cash collections from credit sales. Joe can prepare revised worksheets using different patterns of cash collections from credit sales to see what effect they would have on cash collections.

Worksheet 2

Cash Payments for Materials or Merchandise

The Cash Payments for Materials or Merchandise worksheet provides information about cash outflows related to purchases of materials for manufacturing and merchandise for resale. Cash payments for materials or merchandise is the largest single use of cash for wholesalers, retailers, and manufacturers. The Cash Payments for Materials or Merchandise worksheet presents monthly levels for raw materials and finished goods inventories by product, based on projected sales levels and production requirements. It also summarizes required additions to raw materials and finished goods (whether purchased or manufactured). Finally, the Cash Payments for Materials or Merchandise worksheet presents monthly outflows related to required inventory purchases.

Note

Service companies generally do not purchase materials or merchandise and, therefore, should skip this worksheet. Proceed directly to the Cash Payments for Operations worksheet.

Information You Will Need

Before you can use the Cash Payments for Materials or Merchandise questioning sequence, you must define worksheet format by using the Worksheet Format questioning sequence used in the preceding section, "Worksheet Format." Worksheet format must be defined before any data can be entered.

If you are a wholesaler or retailer, you must supply data about the length of time between merchandise purchases and actual cash payments, desired merchandise inventory levels, and expected merchandise purchase costs.

If you are a manufacturer, you must provide data about the amount of time required to convert raw materials into finished goods (production lag), the length of time between materials purchases and cash payments, inventory levels for finished goods and input materials, and expected materials purchase prices.

Finally, inventory levels for intervals beyond the budget period must be specified so that purchases of materials and merchandise during the last intervals of the budget period can be calculated.

Making Changes to the Worksheet

You may make changes to the format of the Cash Payments for Materials or Merchandise worksheet (i.e., changes to the budget period, etc.) by going back through the worksheet format questioning sequence. You may make data changes (i.e., changes to the numbers on the worksheets) directly on the worksheet itself.

Whenever you make changes to the Cash Payments for Materials or Merchandise worksheet, save the Multiplan worksheet that reflects your changes. The new values will automatically be picked up by the Cash Budget worksheet (worksheet 5) when you load it into Multiplan. This allows you to see the impact of any changes in projected cash payments for materials or merchandise on your completed cash budget.

Your changes may reflect updating of information, or may be made to analyze the effects of inventory purchasing decisions. Inventory purchasing policy can affect purchases, inventory levels, and inventory costs, as well as the timing of cash payments. You may want to use the cash payments for materials or merchandise to analyze the effects of changes in inventory purchasing policy on profitability and cash flow. The Cash Payments for Materials or Merchandise worksheet can be used to determine the effects of changes in gross sales, inventory purchase costs, inventory levels, or timing of cash payments, and production lags.

The following table summarizes the information you will need and tells how to make changes to the Cash Payments for Materials or Merchandise worksheet. The first time you use the worksheet, you must provide all of the required information by going through the Worksheet Format questioning sequence and the Cash Payments for Materials or Merchandise questioning sequence. Later on, you can change worksheet format by going back through the Worksheet Format questioning sequence. You can change data by going through the Cash Payments for Materials or Merchandise questioning sequence again, or by going directly to the worksheet itself.

Table 3
How to Change Worksheet and Questioning Sequence Information

Required Information	Questioning Sequence		
	Worksheet Format	Cash Payments Materials/ Merchandise	Worksheet *
Company name	x		
Worksheet report name	x		
Budget period	x		
Budget intervals	x		
Names of products	x		x
For each product			
Sales revenue	x		x
Product type (manufactured or purchased for resale)		x	
Wholesalers and retailers			
Payment lag for merchandise in intervals		x	
Beginning inventory level†		x	x
Cost as a percent of selling price		x	x
Manufacturers			
Names of input materials required		x	x
Production lag in intervals		x	
Payment lag for input materials in intervals		x	
Finished goods inventory level†		x	x
Input materials inventory levels†		x	x
Cost of each input material as a percent of selling price of finished product		x	x

* You can change data in this column by going directly to the worksheet.

† See “Methods for Entering Amounts” in this section.

How Cash Payments for Materials or Merchandise Information Is Used

The information you provide is used to calculate total cash outflows for purchases of materials or merchandise during the budget period. Total cash payments for materials or merchandise can be copied directly to the overall Cash Budget worksheet.

Enter Program Name: cash

Cash Payments for Materials or Merchandise

Cash payments for materials or merchandise depend on the purchase costs of materials or merchandise and on the timing of cash payments for such purchases.

Purchase Costs

Wholesalers and retailers purchase and resell merchandise which is ready for the consumer. Merchandise purchase costs are determined by multiplying merchandise purchase prices by the amounts purchased. Amounts of merchandise purchased depend on expected sales volumes and desired merchandise inventory levels.

Figure 2 illustrates how inventories flow through a company. If you are a wholesaler or retailer, you purchase goods which go into inventory. Later you sell those goods to your customers. If you are a manufacturer, you purchase raw materials which are held in inventory. Then you convert those materials into finished goods which are held in inventory until they are sold to customers.

Wholesaler or Retailer



Manufacturer

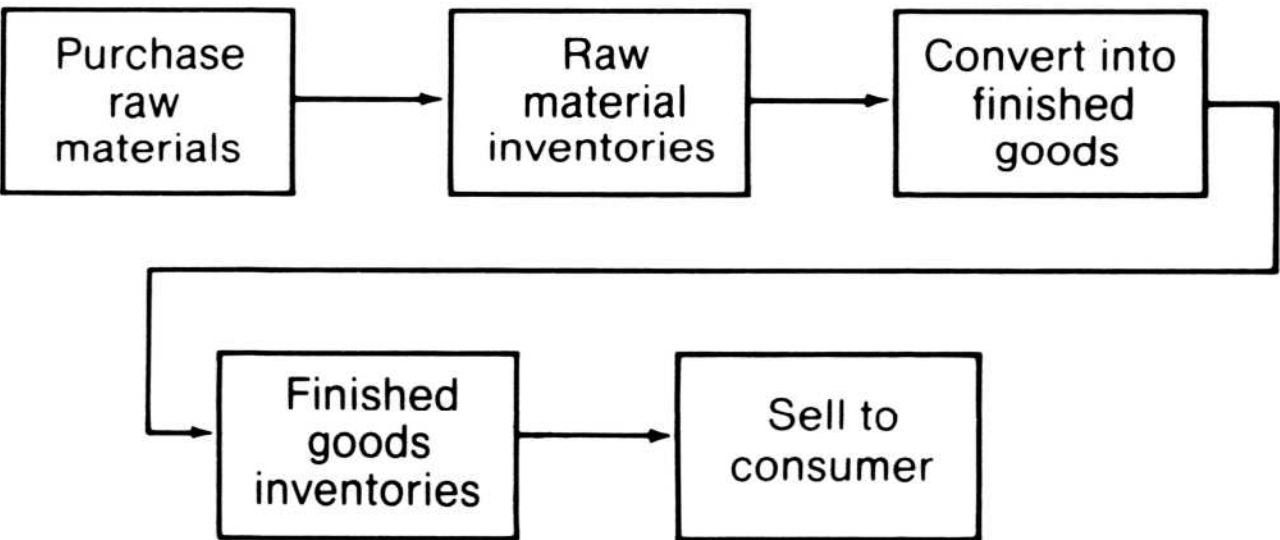


Figure 2. Inventory Flows

Materials purchase costs are determined by multiplying materials purchase prices by the amounts purchased. Amounts of materials purchased depend on expected sales volumes and desired finished goods inventories, as well as on the rate at which raw materials are converted into finished goods (production lag), and desired raw materials inventory levels.

Production lag should be rounded to the nearest interval. Production lag consists of the entire period from the time the raw material enters the production process until the product goes into finished goods inventory.

Inventory Purchasing Policy

Inventory levels, inventory costs, and the size and timing of inventory purchases are determined by a company's inventory purchasing policy. Because the relationships between inventory levels, purchases, and cash payments for purchases are complex, the effects of a company's inventory purchasing policy must be considered carefully.

In establishing its inventory purchasing policy, a company's objective is to maximize profits. Inventory purchasing policy affects profits by determining total inventory costs and by establishing the timing of cash payments for inventory purchases. To increase profits, a company reduces inventory costs and delays cash payments for inventory purchases.

Figure 3 shows how inventory purchasing policies can affect company profits through inventory costs and the timing of cash payments.

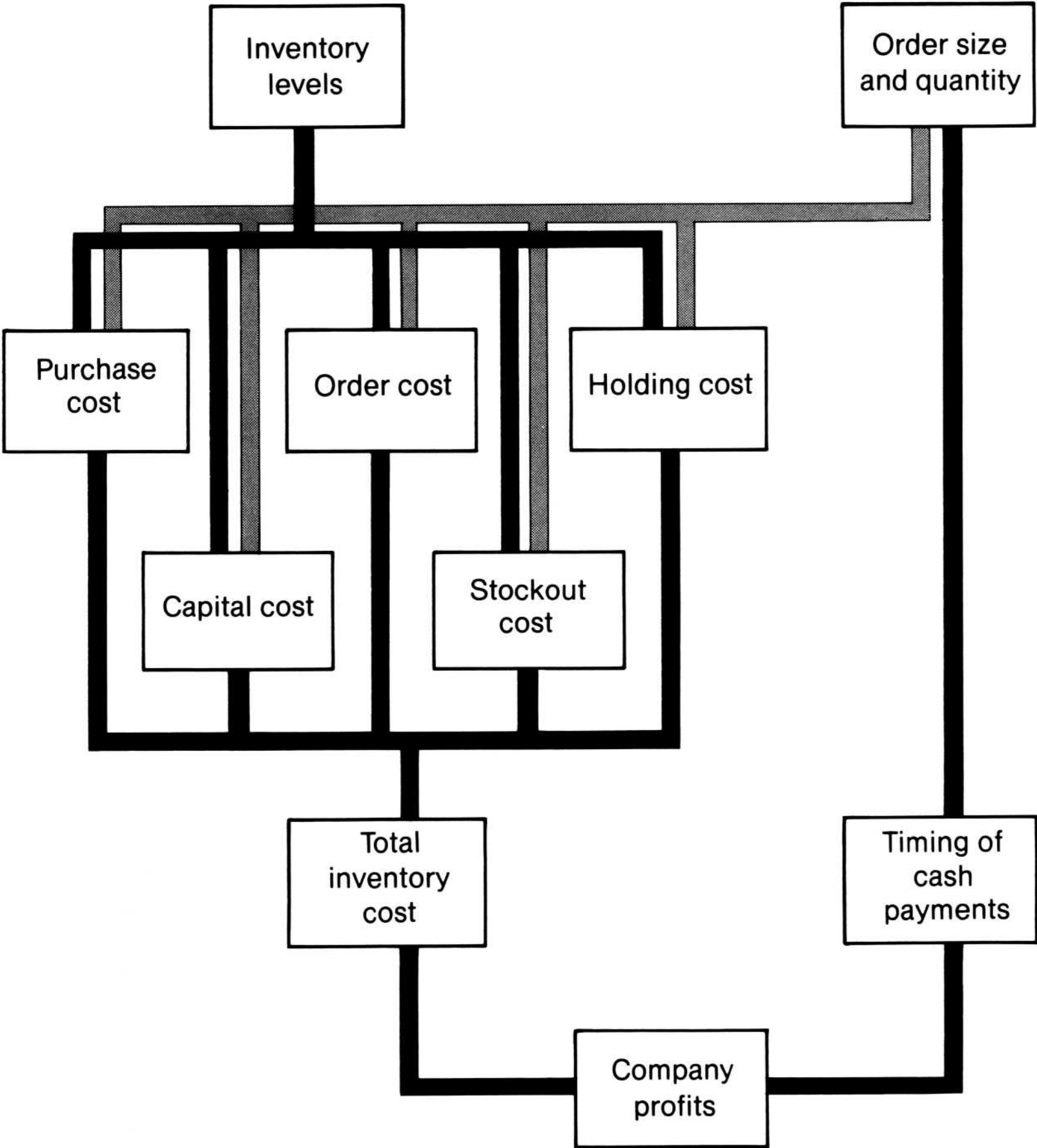


Figure 3. Inventory Purchasing Policy

Inventory Costs

Inventory costs include the explicit costs of purchasing and holding inventories, the implicit cost of lost profits when inventory levels are too low to meet customer demand, and capital costs.

Purchase cost is the actual purchase price of the inventory. This can be calculated by multiplying the cost per unit by the amount purchased. Cost per unit usually varies with the amount purchased because of quantity discounts received when placing large orders.

Purchase discounts (discounts from gross purchase costs granted to purchasers who pay in cash or within a short period of time after the purchase) your company expects to take should be reflected in the purchase prices you provide. Purchase discounts and finance charges affect purchase cost. Finance charges your company expects to pay should also be reflected in purchase prices.

Order cost is the cost of placing and receiving inventory orders. Order cost includes clerical costs of placing orders, costs of checking quantities received, costs of testing goods for quality and placing and organizing the goods in the warehouse, and delivery costs.

Holding cost is the cost of holding goods in inventory. Holding cost includes the cost of warehouse space (including property taxes and maintenance expense), property taxes on the goods themselves, insurance, and losses due to spoilage or deterioration.

Capital cost is lost interest revenue on money which cannot be invested because it is tied up in inventory. Capital cost is equal to the required rate of return multiplied by the total of all of the inventory costs listed in the preceding paragraphs. The company's required rate of return depends on the risk of holding the inventory. If the price of the inventory is likely to fall, or if it is likely to be spoiled, damaged, lost, or stolen, then the risk of holding the inventory is high and the required return on the company's investment in that inventory is also high. If insurance is carried to cover some of these risks, the cost of insurance is part of inventory holding costs.

Stockout cost is the implicit cost of lost profits caused by inventory levels which are too low to satisfy customer demand. Wholesalers and retailers experience such stockout costs when sales are lost because merchandise inventory is not on hand to fill orders. Manufacturers experience stockout costs when raw materials inventories on hand are too low to meet production requirements, so that production is interrupted. Loss of customer goodwill is difficult to quantify, but it may also be an important component of stockout cost.

Total inventory cost is the sum of all of the costs listed in the preceding paragraphs. Remember that purchase cost, order cost, and holding cost are tax deductible, but that capital cost is not. For any given sales volume, larger inventories result in higher explicit costs of purchasing and holding inventory and lower implicit costs of lost profits. Lower inventory levels, on the other hand, are accompanied by lower explicit costs and higher implicit costs. In determining inventory purchasing policy, many alternatives should be considered to minimize total inventory costs.

You may use an economic order quantity (EOQ) model to determine optimal order size using different assumptions about inventory needs, order cost, and holding cost. Or you may prefer to compute total cost of inventory for your company using several different order sizes and choose the profit-maximizing value.

Worksheet 2: Cash Payments for Materials or Merchandise

For example, consider the following simplified situation: Your company needs 3,000 units of inventory during the year. Unit cost is \$40 for orders of 1,000 units or less, \$38 for orders of 1,000 to 2,000, and \$36 for orders of more than 2,000 units. The cost of placing an order is \$50 per order, and holding cost equals 6% of average inventory value. The required rate of return is 15%, and your income tax rate is 48%. This data is summarized below.

Order Size	Purchase Cost	Order Cost	Holding Cost	Capital Cost	Total Cost
1,000	\$120,000	\$150	\$1,200	\$3,000	\$66,102
2,000	114,000	75	2,280	5,700	66,205
3,000	108,000	50	3,240	8,100	65,971

These results indicate that your company should place one order of 3,000 units to minimize total inventory cost.

Timing of Cash Payments

Payments for cash purchases occur immediately, but most companies delay payment by purchasing materials and merchandise on credit. Payment of a given month’s credit purchases may be made immediately upon receipt of the bill, or they may be made over a period of months following the purchase itself. Even when a company pays for credit purchases immediately upon receipt of the bill, there is usually a lag between the actual receipt of the goods and the cash payment.

Payment lag should be rounded to the nearest interval.

In general, cash payments for inventory purchases should be delayed for as long as possible without incurring additional costs. As long as there are no additional costs (in the form of discounts lost, finance charges, or damaged vendor relations), delaying cash payments means that funds can be invested to earn interest or used to reduce borrowing. However, if discounts are lost, or if you must pay finance charges, or if your vendor tightens his credit terms, raises his prices, or refuses to sell to you because your account is past due, then the costs of delaying payment may outweigh the benefits.

Suppose your company purchases \$100,000 worth of inventory, and that terms are 2/10, net/30. You will receive a 2% discount if you pay the bill within 10 days, and that the entire amount is due in 30 days if you do not take the discount. You may decide to pay the amount due as soon as you receive the bill, or to wait until a later date. If you pay the bill within 10 days of receiving it, then you will receive a 2% discount. The net cost of the inventory received will be $\$100,000 - (2\% \times \$100,000)$ or \$98,000.

If you decide to pay in 30 days, then the net cost of the inventory received will be \$100,000. You have gained the use of \$98,000 for 20 days, but it has cost you \$2,000 because of the discount lost. This \$2,000 cost of using \$98,000 for 20 days translates into an annual interest rate of $(\$2,000/\$98,000) \times (20 \text{ days}/360 \text{ days per year})$ or 36.7%. Delaying payment this way is known as using trade credit. Trade credit is a form of short-term financing that is convenient, but costly.

Another consideration in the timing of cash payments for inventory purchases is float time. If your check will spend several days in the mail, or if there is a considerable distance between your bank and your vendor's bank, then your company may be able to use the money for a few more days.

A good way to determine the timing of cash payments is to analyze your company's past experience. When analyzing your company's past experience with cash payments for inventory purchases, measure the payment lag from the actual date of purchase (i.e., the date when goods are received) to the date cash is disbursed.

Using the Worksheet

Microsoft Cash Plan offers you a selection of methods for entering amounts for cash payments for materials or merchandise. These methods are summarized in the following table.

Table 4
Methods for Entering Amounts: Worksheet 2*

	Single Value	Inter- val	Base Amt.	Current Sales	C & F Sales	Sell Price	C & F Product.
Wholesalers and retailers							
Payment lag	x						
Beginning merchandise inventory levels		x	x	x	x		
Cost of merchandise						x	
Manufacturers							
Production lag	x						
Payment lag	x						
Beginning finished goods inventory levels		x	x	x	x		
Beginning input materials inventory levels		x	x				x
Cost of input materials						x	

* Each method is outlined in the following sections.

Methods for Entering Amounts

Whenever there is a choice of calculation methods, you must specify your choice by going through the Worksheet Format questioning sequence. If you want to choose a different calculation method, you must go back through the Worksheet Format questioning sequence. If you want to change the data related to the method chosen, you may go directly to the worksheet itself.

Single Value

Payment lag for purchase of materials or merchandise should be specified as single values, rounded to the nearest budget interval. Production lag for manufactured products should also be specified as a single value, rounded to the nearest budget interval.

The value to use for payment lag or production lag depending on the size of your budget interval and the number of days in your lag is outlined below.

One-Month (30-Day) Budget Interval

Days	Lag in Intervals
0—15	0
16—45	1
46—75	2

One-Quarter (90-Day) Budget Interval

Days	Lag in Intervals
0— 45	0
46—135	1

One-Half Year (180-Day) Budget Interval

Days	Lag in Intervals
0— 90	0
91—270	1

Interval by Interval

Merchandise, finished goods, and raw materials inventory levels may be specified individually for each interval in the budget period. If this calculation method is selected, you must specify the beginning inventory level desired for each budget interval. Inventory levels for merchandise and finished goods should be specified in terms of selling price. (The program converts selling price to cost.) Raw materials inventory levels should be specified in terms of cost.

Base Amount With Constant Growth Rate

Merchandise, finished goods, and raw materials inventory levels may be specified as a base amount with a constant growth rate. If you select this calculation method for merchandise, finished goods, or raw materials inventory, you must indicate the base amount to be held and the growth rate. For merchandise and finished goods inventories, the base amount should be in terms of selling price. For raw materials, the base amount should be in terms of cost.

For example, suppose you expect to have enough merchandise inventory on hand to make \$25,000 of sales, and that you expect inventory levels to increase by 12% per year. In this case, you would specify a base amount of 25,000 and a growth rate of 12%.

Percentage of Current Sales

Merchandise and finished goods inventory levels may be specified as a percentage of current sales if they vary directly with the current sales level. This relationship is represented in the following graph:



To use this method, you must specify the amount of the item as a percentage of current sales. For example, if you expect to hold inventory equivalent to 100% of the current month’s sales, you should set the percentage of current sales equal to 100%.

Function of Current and Future Sales

Merchandise inventory and finished goods inventory at the beginning of a budget interval may be specified as a function of current and future sales. If you use this method, inventory at selling price is calculated as a base amount plus a percentage of current sales plus percentages of future sales. Desired merchandise and finished goods inventory levels should be expressed in terms of selling price (i.e., the price you charge your customers). The program converts selling price to cost.

To use this method, you must specify the base amount and the percentage of the current interval's sales and the percentages of future intervals' sales to be included in beginning inventory for the current interval. For example, suppose you expect to hold beginning inventory equivalent to \$60,000 of sales plus 100% of the current month's sales and 50% of the next month's sales. In that case, you should set the base amount equal to \$60,000, the percentage of current sales equal to 100%, and the percentage of the next month's sales equal to 50%. Percentages of future months' sales would all be 0. This is summarized below:

- Base amount. \$60,000*
- Current sales. 100%*
- Next month's sales. 50%*

* The following equation is used to calculate the sales value of merchandise or finished goods inventory when this method is used:

Period t beginning inventory at selling price = $B@-(t) + b@-(0)S@-(t) + b@-(1)S@-(t+1) + \dots + b@-(5)S@-(t+5)$

where

$B@-(t)$ = inventory value for period t at selling price

$b@-(0), \dots, b@-(n)$ = percentages of sales for current interval and next n intervals in current interval's beginning inventory

$S@-(t), \dots, S@-(t+5)$ = gross sales for each interval

Percentage of Selling Price

The purchase cost of merchandise should be expressed as a percentage of selling price. The purchase cost of each raw material used in each manufactured product should also be expressed as a percentage of the selling price of the completed product. The program converts selling price into purchase cost by multiplying the total selling price for the inventory held by the purchase cost percentage. You can calculate this percentage on a per unit basis (cost per unit divided by selling price per unit) or on an overall basis (total cost divided by total gross sales).

Function of Current and Future Production

Raw materials inventories at the beginning of a budget interval may be specified as a function of current and future production. If you use this method, inventory at cost is calculated by combining a base amount plus percentages of current production and future production.

You may specify any number of raw materials per product. However, you will probably want to limit yourself to about 10 input materials per product by grouping. You must include all materials used to make each product even if the same materials are also used in other products.

Worksheet 2: Cash Payments for Materials or Merchandise

If you use this method, you must specify the base amount at cost as well as the percentages of material required for production in the current interval and in the next six intervals that are to be included in the beginning inventory for the current interval. For example, suppose you expect to hold beginning inventory costing \$30,000 plus 100% of the current interval's productions requirements. Your input is summarized below:

Base amount. \$30,000*

Current sales. 100%*

Next month's sales. 50%*

* The following equation is used to calculate the cost of raw materials inventory when this method is used:

$$\begin{aligned} \text{Period } t \text{ beginning inventory at cost} = & R@-(t) + r@-(0)RM@-(t) \\ & + r@-(1)RM@-(t+1) \\ & + \dots + r@-(5)RM@-(t+5) \end{aligned}$$

where

$R@-(t)$ = inventory value for period t at cost

$r@-(0), \dots, r@-(n)$ = percentages of raw material needed for current interval and next n intervals' production in current interval's beginning inventory

$RM@-(t), \dots, RM@-(t+5)$ = cost of raw materials needed for production for current interval and next five intervals

Example Case

Bay Company purchases its four kinds of fishing rods from two similar suppliers. Both suppliers deliver orders promptly and reliably. For cash planning purposes, Joe Monda, the manager, has decided to treat the four kinds of fishing rods as a single category of merchandise.

The purchase cost of fishing rods is 60% of the sales price. Bay Company buys on credit and pays the bill in the month following receipt of the merchandise.

Bay Company manufactures its fishing reels from sheet steel, a purchased gear mechanism, and bolts. For cash planning purposes, Joe has decided to treat sheet steel as one raw material and the gear mechanism and bolts as another raw material.

Bay Company's sales tend to be slightly higher in the summer than during the rest of the year. Joe feels that finished goods inventory levels of 100% of the current month's sales plus 50% of the next month's sales will be sufficient during the entire budget period.

To meet production requirements, Joe expects to keep on hand sheet steel costing \$40,000 for January through March, \$45,000 for April through September, and \$36,000 for October through December. The cost of the steel required to make one fishing reel is equal to 6% of the selling price of a finished fishing reel.

Joe also plans to hold gears and bolts sufficient to meet 90% of current month's production plus 50% of the next month's production in inventory. In addition, a constant safety stock of gears and bolts costing \$60,000 is needed. The cost of gears and bolts represents 15% of the selling price of a finished fishing reel.

Bills from the suppliers of sheet steel and gears and bolts are paid in the interval following receipt of the materials. Production lag for fishing reels is less than one day.

Decision Analysis

Bay Company is concerned that the cost of sheet steel used to make fishing reels may rise to 8% of the selling price of completed fishing reels. To see the effect of this increase on cash payments, Joe can revise his Cash Payments for Materials or Merchandise worksheet. The revised worksheet will show the effect of the increased cost of sheet steel on cash payments.

Bay Company is also considering changing its inventory policy. Management thinks that it might be wise to keep finished goods and merchandise inventories on hand to cover two months' sales. Joe can prepare a revised worksheet to show the effect of these higher inventory levels on cash payments.

Worksheet 3

Cash Payments for Operations

The Cash Payments for Operations worksheet summarizes information about cash outflows for production, warehousing, administration, and selling activities. For wholesalers, retailers, and manufacturers, cash payments for operations are usually less significant than cash payments for materials or merchandise. However, cash payments for operations are usually the primary outflows of cash for service companies.

Information You Will Need

Before you can use the Cash Payments for Operations worksheet, you must define worksheet format by using the Worksheet Format questioning sequence outlined in the preceding section, “Worksheet Format.” Worksheet Format must be defined before any data can be entered.

When you begin to use the Cash Payments for Operations questioning sequence, you must provide some additional Worksheet Format information about the operating cost categories that are important to your company. Your cost categories may include:

- Production and warehousing costs

 - Direct production labor

 - Indirect production labor

 - Indirect materials

 - Other production costs

 - Warehousing labor

Warehousing supplies

Other warehousing costs

Administrative expenses

Administrative salaries

Supplies

Repairs and maintenance

State and local taxes other than income taxes

Professional fees

Other administrative expenses

Selling expenses

Sales salaries

Travel

Delivery

Advertising and promotion

Other sales expenses

The categories above are only suggestions of costs you may wish to include. You may specify any costs you need. Your worksheet will include only the categories you specify. For example, service companies may wish to add various salary categories (e.g., partner salaries and staff salaries). Some operating costs, such as depreciation expense, do not require cash outlays. Such items should be excluded from the Cash Payments for Operations worksheet.

Once worksheet format is defined, you may enter data. You must provide data on projected cash payments for all cost categories you decide to include in your worksheet.

Making Changes to the Worksheet

Changes to the format of the Cash Payments for Operations worksheet (i.e., adding or deleting cost categories) can be made by going through the Worksheet Format questioning sequence again. Data changes (i.e., changes to the actual numbers) can be made directly on the worksheet itself.

If you make changes to the Cash Payments for Operations worksheet, be sure to save the new Multiplan worksheet that reflects your changes. The new results will be picked up automatically by the Cash Budget worksheet when it is loaded into Multiplan. This allows you to see the effects of any changes in cash payments for operations on your final cash budget.

Changes may be made to reflect new, updated information, or to evaluate the effects of alternative decisions. The Cash Payments for Operations worksheet can be used to calculate the effects of changes in gross sales, the types and amounts of operating costs, and the timing of cash payments.

The following table summarizes the information you will need and tells how to make changes to the Cash Payments for Operations worksheet. The first time you use the worksheet, you must provide all of the required information by going through the Worksheet Format questioning sequence and the Cash Payments for Operations worksheet questioning sequence. Later on, you can change worksheet format by going back through the Worksheet Format questioning sequence. You can change data by going through the Cash Payments for Operations worksheet questioning sequence again, or by going directly to the worksheet itself.

Table 5
How to Change Worksheet
and Questioning Sequence Information

Required Information	Questioning Sequence		
	Worksheet Format	Cash Payments Operations	Worksheet*
Company name	x		
Worksheet report name	x		
Budget period	x		
Budget intervals	x		
Total sales revenue†		x	x
For each cost category			
Add/delete cost category		x	
Amount of cost†		x	x
Payment lag		x	x

* You can change data in this column by going directly to the worksheet.
† See “Methods for Entering Amounts” in this section.

How Cash Payments for
Operations Information Is Used

The information you provide is combined in the Cash Payments for Operations worksheet to determine the total amounts and timing of cash payments for operations during the budget period. Total cash payments for operations can be accessed directly by the Cash Plan worksheet.

Enter Program Name: cash

Cash Payments for Operations

Cash payments for operations include all cash payments for costs of operations other than payment for materials or merchandise. (Cash payments for materials or merchandise are included in Worksheet 2.) Cash payments for operations depends on the absolute amounts of these costs and on the timing of the related cash payments.

Amounts of Operating Costs

To determine the amounts of operating costs for each of your operating cost categories, you must first determine the relationship between the cost itself and the company's gross sales activity. To do this, consider the nature of the cost and examine the past relationship between the cost and gross sales. For example, operating costs may be directly related to sales, they may remain constant throughout the budget period, or they may grow at a steady rate.

Some operating costs may not be related to sales at all. For example, repair and maintenance costs are probably more closely related to age of equipment than to sales levels. Also remember that some operating costs, such as depreciation, do not require cash outlays. Such operating costs should be excluded from the Cash Payments for Operations worksheet.

If you have already used Microsoft Budget to prepare an operating budget, you can use the results of that Multiplan application's Manufacturing Overhead Budget worksheet and Selling and Administrative Expense Budget worksheet as a starting point. Remember, however, that Microsoft Budget presents expense information rather than the cash flow information needed in Microsoft Cash Plan.

Timing of Cash Payment

Most companies make cash payments for their operating costs in the interval incurred or in the next interval. In general, managers can exercise little control over the timing of these payments.

Production and Warehousing Costs

Production costs, or manufacturing costs, are the costs of converting raw materials into finished goods. These costs include the costs of direct materials, direct production labor, and production overhead. If you have already used Microsoft Budget, you may want to use the results of that Multiplan application's manufacturing overhead budget (Worksheet 1) and the unit cost budget (Worksheet 2) as a starting point.

Remember that only manufacturers have production costs. If you are a wholesaler, retailer, or service company, you will not have production costs. Your administrative expenses will be much more significant, because that is where the majority of your costs appear.

Direct production labor costs include wages, benefits, and payroll taxes of employees whose work can be traced directly to the finished goods of the company. The labor costs of machinists and assemblers are included in this category.

Production overhead includes indirect production labor costs and indirect material costs. Indirect production labor costs are wages, benefits, and payroll taxes costs of employees working in the factory but whose work cannot be directly traced to finished goods. The labor costs of factory supervisors, inspectors, and maintenance personnel are included in this category.

Indirect material costs include costs of materials that cannot be attached directly to the finished goods. Materials used to maintain and repair factory equipment and janitorial supplies used in the factory are included in this category.

Warehousing costs are the costs of receiving and storing materials and merchandise.

Warehousing labor costs include the wages, benefits, and payroll taxes of employees working in the warehouse.

Warehousing supply costs include the costs of any supplies used in the warehouse. Janitorial supplies used in the warehouse would be included in this category.

Administrative Expenses

For manufacturers, wholesalers, and retailers, administrative expenses are the costs of managing the business. This category should include all costs other than manufacturing costs and selling costs. For service businesses, administrative expenses also include the costs of providing your service.

Administrative salaries expense includes the salaries, benefits, and payroll taxes of managers and administrative office staff such as accountants and secretaries. If you are in a service business, you should also include the salaries paid to the employees who actually provide your service.

Supplies expense includes office costs such as accounting and secretarial supplies. Service businesses would also include the cost of other supplies used in providing the service to customers.

Repairs and maintenance expense includes the costs of repairing and maintaining office equipment. For service businesses, this category also includes repairs and maintenance of equipment used to provide your service.

State and local taxes other than income taxes include property taxes, business and occupation taxes, licenses, and fees.

Professional fees include the charges of consultants, attorneys, and public accountants.

Administrative expenses may be specified to suit other requirements of your company. Service businesses may want to break costs down further to allow for more detailed analysis. For example, you may use separate categories for service personnel salaries and service supplies rather than including them in the general administrative salaries and supplies categories above.

Selling Expenses

Selling expenses include all costs of selling and delivering the company's product or service to customers. For many companies, selling expenses are very significant. Selling expenses are especially important in cash budgeting because it is often possible to change the amounts spent or the timing of cash payment for selling expenses without seriously affecting profits.

Sales salaries and commissions expense includes the salaries, benefits, payroll taxes, and commissions of sales personnel.

Travel expense includes the costs of any trips related to selling activities. For example, if a salesman must travel to another city to visit a customer, the costs of his air travel, his motel, and his meals are travel expenses.

Delivery expense includes the costs of packaging the product (labor and packaging supplies), and shipping and mailing charges. If your product is heavy or bulky, or if you must ship long distances, delivery expense can be a very significant operating expense.

Advertising and promotion expense includes the costs of media messages of all kinds, including flyers and catalogues. Postage and distribution costs for advertising should also be included here.

Using the Worksheet

Microsoft Cash Plan offers you a selection of methods for entering amounts for the Cash Payments for Operations worksheet. Calculation methods you may use are summarized in the following table.

Table 6
Methods for Entering Amounts: Worksheet 3*

	Interval	Base Amount	Current Sales	Step Function	Other Worksheet
Total sales revenues for each operating cost	x	x			x
Amount of operating cost	x	x	x	x	

* Each method is outlined in the following sections.

Methods for Entering Amounts

Whenever there is a choice of calculation methods, you must specify your choice by going through the Worksheet Format questioning sequence. If you want to choose a different calculation method, you must go back through the questioning sequence. If you want to change to data related to the method chosen, you may go directly to the worksheet itself.

Interval by Interval

The amount of any operating cost may be specified individually for each interval in the budget period. If this calculation method is selected, you must specify the amount of that operating cost individually for each budget interval.

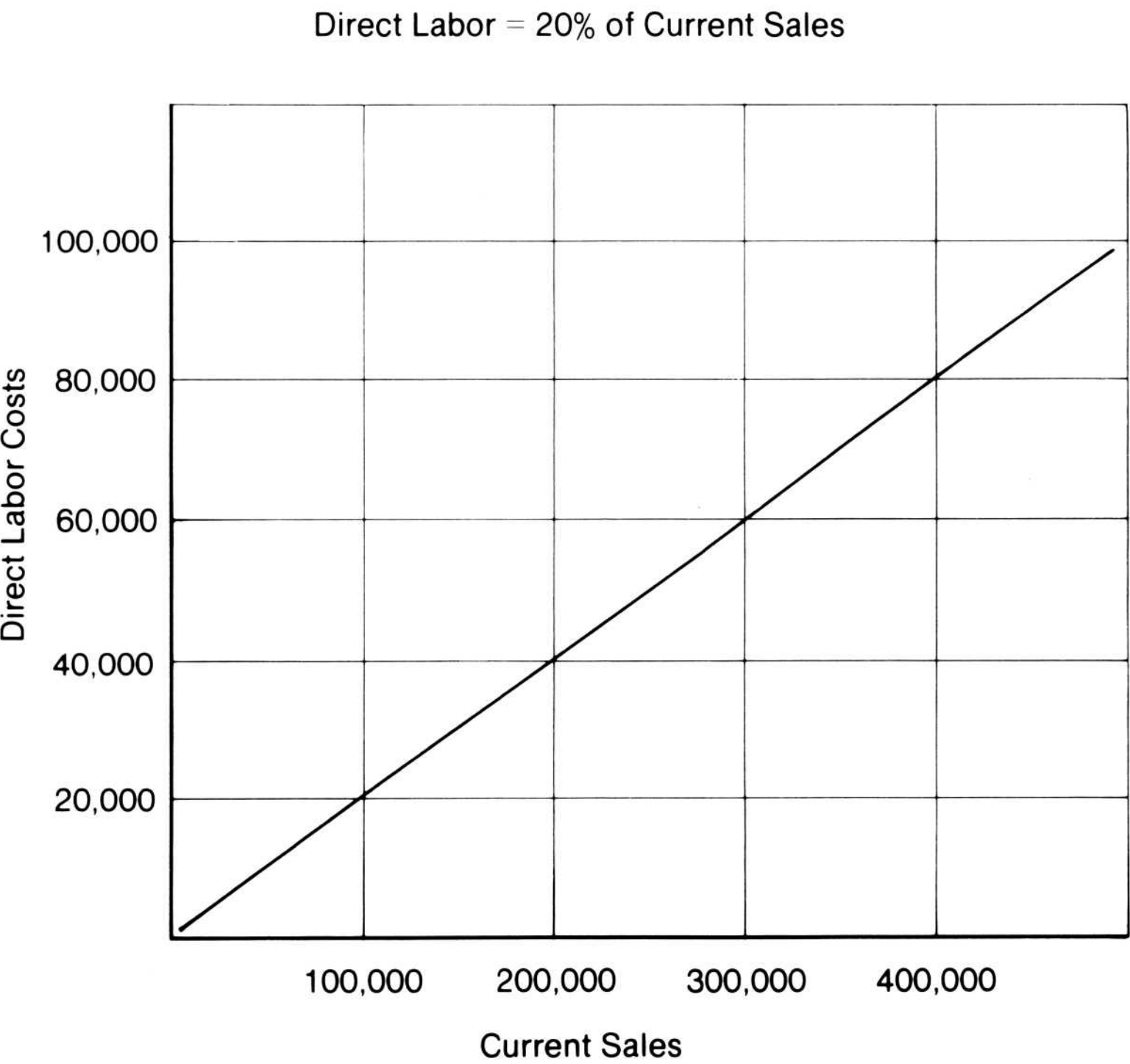
For example, suppose rent expense is expected to be \$1,000 per month during each interval of the budget period. In this case, you would specify rent expense of \$1,000 for each interval.

Base Amount With Constant Growth Rate

Some operating costs may be expected to grow at a constant rate beginning at a base level at the beginning of the budget period. To use this calculation method, you must specify the base amount and the growth rate. For example, you may be expecting to hire new employees at an even rate throughout the year. In that case, you might specify a base level of \$100,000 for production labor, and a growth rate of 10%.

Percentage of Current Sales

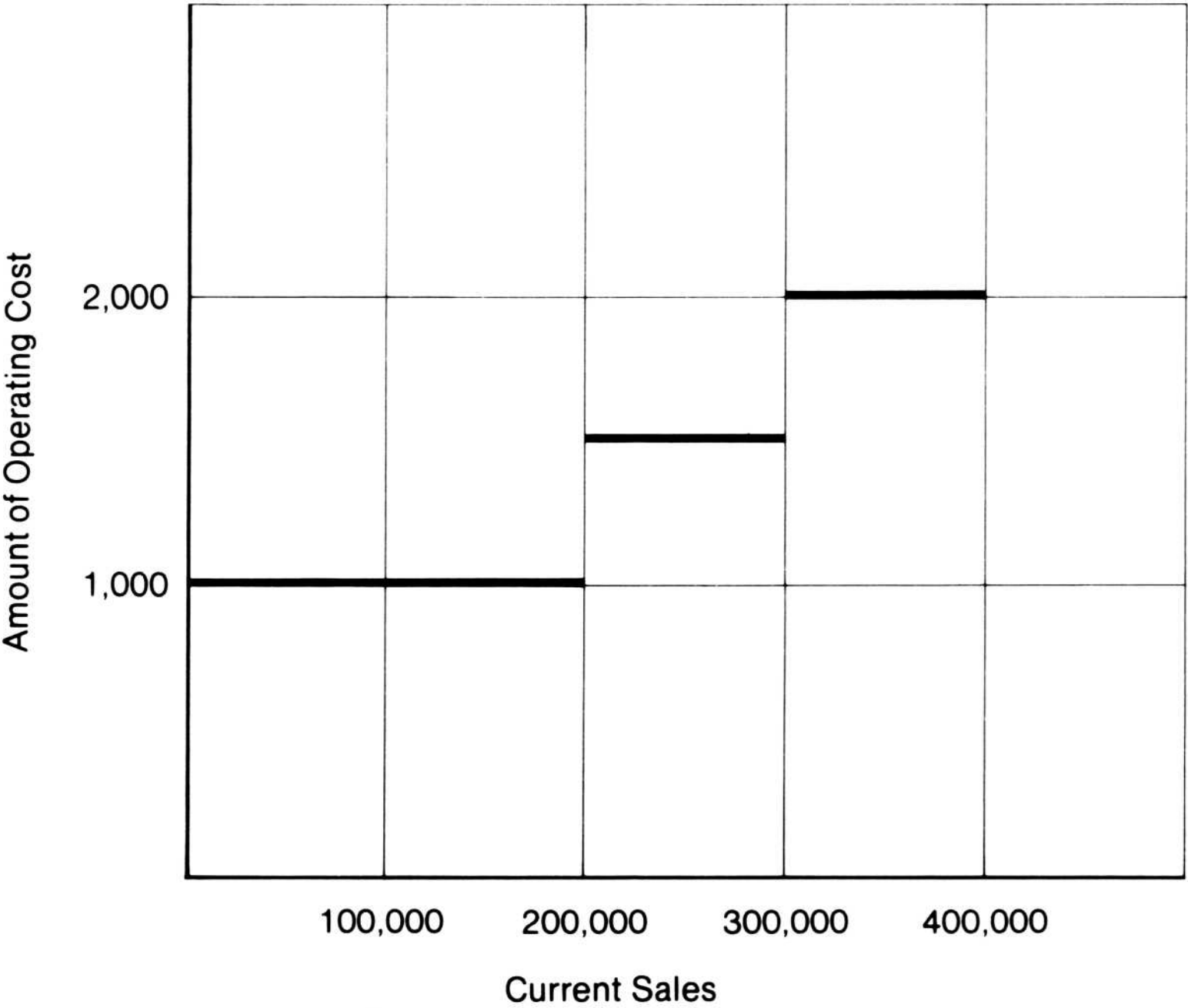
Many operating costs vary directly with the amount of gross sales. Costs that vary directly with sales should be expressed as a percentage of gross sales for each interval. This relationship is represented in the following graph:



For example, you might expect direct laboring to be 20% of total sales for each interval of the budget period. In this case, you would specify direct labor cost as 20% of current sales. This would mean that for sales of \$100,000 direct labor would be $20\% \times \$100,000$, or \$20,000.

Step Function of Sales

Other operating costs may vary in steps with sales. This means that for a particular range of sales, the operating cost is constant at one level, but that for a higher range of sales, the operating cost is constant at a higher level. This is represented in the following graph:



For operating costs that vary in steps with sales, you must specify the total cost per interval if sales levels are within sales ranges specified by you. For example, telephone expense may be fixed at \$1,000 when sales are up to \$200,000 per month. For sales between \$200,000 and \$300,000 per month, telephone expense may increase to \$1,500. For sales between \$300,000 and \$400,000 per month, telephone expense may be \$2,000. This is summarized below:

Amount of Operating Cost	Maximum Sales for Step
\$1,000	\$200,000
\$1,500	\$300,000
\$2,000	\$400,000

Copy From Another Worksheet

You may copy total sales for all products from the Cash Collections From Sales worksheet. In this case, you must specify the name of the worksheet you are copying from.

Payment Lag for Operating Costs

Payment lag for operating costs should be specified as a single value, rounded to the nearest budget interval.

Example Case

Joe, the manager of Bay Company, went through the questioning sequence and selected the following operating cost categories for Bay Company:

Production and warehousing costs

- Direct production labor

- Indirect production labor

- Indirect materials

- Warehousing labor

- Warehousing supplies

Administrative expenses

- Administrative salaries

- Rent

- Telephone

- Utilities

- Supplies

- Repairs and maintenance

- Insurance

- State and local taxes other than income taxes

- Professional fees

Selling expenses

Sales salaries

Travel

Delivery

Advertising and promotion

Other sales expenses

Production and Warehousing Costs

Joe has determined that Bay Company's direct labor cost is equal to 20% of total sales, and that indirect materials costs are equal to 1.5% of total sales each interval. All other production costs and warehousing costs are fixed costs which do not vary with sales levels. All production and warehousing costs are paid in the month incurred, so payment lag for production and warehousing costs is zero.

Administrative Expenses

Joe has determined that telephone expense and utilities expense are costs that vary in steps with sales. First, Joe set up the four sales steps below:

\$1 — \$492,500
\$492,501 — \$525,000
\$525,001 — \$557,500
over \$557,500

Microsoft Cash Plan

Then he estimated telephone expense and utilities expense for each sales step as follows:

Sales Step	Telephone	Utilities
\$1 — \$492,500	\$1,000	\$1,800
\$492,501 — \$525,000	\$1,500	\$3,200
\$525,001 — \$557,500	\$2,000	\$3,700
over \$557,500	\$2,500	\$4,500

Insurance costs and taxes are expected to vary directly with sales. Insurance is expected to be 0.5% of sales, and taxes are expected to be 1% of sales. Other administrative costs are not directly related to sales. All administrative expenses are paid in the month incurred, so payment lag for administrative expenses is zero.

Selling Expenses

Travel costs vary directly with sales and are expected to be 1.5% of sales. Delivery costs are step costs, and are expected to be \$1,000, \$1,500, \$1,800, and \$2,000 for the same sales level intervals used above. Sales salaries and commissions are determined using a complex formula based on sales. Joe decides to enter the expected amounts individually for each interval. Other selling expenses do not vary directly with sales. Selling expenses are paid in the month incurred, so payment lag for selling expenses is zero.

Decision Analysis

The management of Bay Company believes that a new labor contract will increase labor costs to 25% of sales each month. Joe can prepare a revised Cash Payments for Operations worksheet to reflect this increase. The revised worksheet will show how much cash payments for operations will increase because of the increase in labor costs.

Worksheet 4

Nonoperating Cash Flows

The Nonoperating Cash Flows worksheet summarizes anticipated cash flows from financing and investing activities during the budget period. These cash flows are not directly related to a company's routine operations, but they may be very significant.

Information You Will Need

Before you can use the Nonoperating Cash Flows worksheet, you must define worksheet format by using the Worksheet Format questioning sequence outlined in the preceding section, "Worksheet Format."

When you begin to use the Nonoperating Cash Flows questioning sequence, you must provide additional information concerning the categories of nonoperating cash flows that are important to your company. These categories may include:

- Cash inflows

 - Investment revenues

 - Sales of property, plant, and equipment

 - Sales of financial assets

 - New financing

 - Other nonoperating cash collections

Cash outflows

Debt payments (principal and interest)

Mortgage payments (principal and interest)

Payments to owners (dividends and purchase of treasury stock)

Purchases of property, plant, and equipment

Purchases of financial assets

Other nonoperating cash payments

You may specify the nonoperating cash flow categories to fit your company's particular needs.

Once worksheet format has been defined, data can be entered. You must provide the amounts of your company's projected cash inflows and cash outflows for each nonoperating cash flow category.

Making Changes to the Worksheet

Changes to worksheet format should be made by going back through the Worksheet Format questioning sequence. Data changes (i.e., changes to numbers) should be made by going directly to the worksheet itself. If you decide to make changes to the Nonoperating Cash Flows worksheet, save the new Multiplan worksheet that reflects your changes. This data will be copied directly to the Cash Budget worksheet when it is loaded into Multiplan. This lets you see the effects of your changes on your final cash budget.

The Nonoperating Cash Flows worksheet can be used to analyze the effects of changes in a company's financing and investing activities. Changes may be made to reflect updated information, to evaluate alternative financing and investing decisions, or to analyze the effects of changing the timing of implementing such decisions.

The following table summarizes the information you will need and tells how to make changes to the Nonoperating Cash Flows worksheet. The first time you use the worksheet, you must provide all of the required information by going through the Worksheet Format questioning sequence and the Nonoperating Cash Flows worksheet questioning sequence. Later on, you can change worksheet format by going back through the Worksheet Format questioning sequence. You can change data by going through the Nonoperating Cash Flows worksheet questioning sequence again, or by going directly to the worksheet itself.

Table 7
How to Change Worksheet
and Questioning Sequence Information

Required Information	Questioning Sequence		
	Worksheet Format	Nonoperating Cash Flows	Worksheet*
Company name	x		
Worksheet report name	x		
Budget period	x		
Budget intervals	x		
Cash inflows			
Categories†		x	
Amounts†		x	x
Cash outflows			
Categories†		x	x
Amounts†		x	x

* You can change data in this column by going directly to the worksheet.

† See “Methods for Entering Amounts” in this section.

How Nonoperating Cash Flows Information Is Used

The information you provide is combined in the Nonoperating Cash Flows worksheet to determine the cash flow from nonoperating sources during each interval of the budget period. The categories listed are merely suggestions. You can add or delete categories as you wish. Nonoperating cash flows for each interval can be copied directly to the Cash Budget worksheet.

Enter Program Name: cash

Nonoperating Cash Flows

Nonoperating cash flows are cash collections and cash payments which result from a company's financing and investing activities. For example, you may invest in an additional plant to be able to manufacture a new product. This requires a cash payment but it is not a routine operation for your company. To finance such expansion, you may decide to sell some investments, or you may issue new long-term debt. Unless your company is a financial institution (such as a bank) such activities are not part of your company's routine daily operations. Nonoperating cash flows depend on your company's financing and investing decisions and on when those decisions are implemented.

Cash Inflows

Nonoperating cash collections include proceeds from:

- Investment revenues

- Sales of property, plant, and equipment

- Sales of financial assets

- New financing

- Additional investment by owners

These cash collections depend on the amounts of the transactions themselves and on the timing of the actual cash flows.

Investment revenues include dividends from stock in other companies; interest on bank deposits, money market funds, bonds, or treasury bills; rental income; and royalties.

Sales of property, plant, and equipment include sales of land, office buildings, equipment, and factory buildings and equipment. These are your company's long-term, productive assets.

Sales of financial assets include sales of stocks and bonds of other companies, treasury bills, certificates of deposit, and other financial investments held by your company.

New financing includes both debt financing and equity financing. Debt financing includes use of short-term trade credit, promissory notes, and lines of credit as well as long-term debt and mortgages. Equity financing is additional investment by owners in your company's stock. New financing brings cash into the company for operations and for growth.

Other nonoperating cash collection categories may be added to fit the particular needs of your company.

Timing of Cash Inflows

Cash inflows from the nonoperating items described above do not always occur at the same time as the transactions themselves. For example, suppose you sell a piece of equipment for \$7,000 in March. If you allow the buyer to make payment two months after the sale, the related cash collection would occur in May. When considering this type of transaction, you should think about whether your buyer really requires such financing from you, and whether your cost (in terms of lost interest) is significant.

Cash Outflows

Nonoperating cash outflows include:

- Debt payments (principal and interest)

- Mortgage payments (principal and interest)

- Payments to owners (dividends and purchase of treasury stock)

- Purchases of property, plant, and equipment

- Purchases of financial assets

Debt payments are principal and interest payments on the company's outstanding short-term and long-term debt. Principal payments are repayments of the actual amounts borrowed. Interest is the periodic cost of borrowing the principal.

Mortgage payments are principal and interest payments on mortgages. Mortgage payments may be principal only, interest only, or a combination of principal and interest.

Payments to owners include periodic dividend payments to the company's stockholders and payments to stockholders for repurchase of stock.

Purchases of property, plant, and equipment include purchases of land, office buildings and equipment, and factory buildings and equipment.

Purchases of financial assets include purchases of stock and bonds of other companies, treasury bills, certificates of deposit, and other financial investments. Financial assets may be purchased as short-term or long-term investments.

Other nonoperating cash payment categories may be added to meet the needs of your company.

Timing of Cash Payments

Cash payments for nonoperating items may occur in intervals other than the intervals of the transactions themselves. For example, a company might declare a cash dividend in December and actually pay it in January.

Financing and Investing Decisions

Long-term financing and investing decisions are part of strategic planning and are not usually affected by current management decisions. However, the timing of asset acquisition or sale, or debt issuance or repayment, can be affected by cash flow considerations.

Short-term financing and investing decisions, on the other hand, are directly affected by current operations. Temporary cash shortages and surpluses are common occurrences for many profitable companies. Temporary cash surpluses occur when a company has more cash on hand than is needed to pay for current purchases and current operations. Temporary cash shortages occur when cash payments for materials or merchandise and cash payments for operations must be paid before cash from sales is received. These cash shortages may be recurring, seasonal shortages, or they may be unexpected.

Short-Term Investing

Temporary cash surpluses should be invested in short-term financial assets. Such liquid financial assets can be bought on short notice, held for short periods of time, and sold when the cash is needed. Short-term investment opportunities include Treasury bills, certificates of deposit (issued by major banks), money market funds, and bankers' acceptances. The investment chosen depends on interest rates, the risk the company is willing to take, the amount available for investment, and the length of time the money is available.

Short-Term Financing

Short-term financing can be used to cover temporary cash shortages. Short-term financing is available from several sources, including banks, finance companies, officers of the company, and trade creditors. Short-term borrowing may be secured (or collateralized) by accounts receivable, inventories, property, investments, or compensating balances (company deposits at the lending bank).

In general, total short-term debt should be limited to the amount that can be paid off on schedule. It is prudent to have several sources of short-term financing available, so that the company is not totally dependent on any one source. Lenders who understand your business can sometimes provide useful advice, and they may be more likely to supply needed funds if they are justified.

Short-term funds can also be obtained by selling off liquid financial assets such as money market funds, marketable securities, and Treasury bills. This kind of funding has the advantage of being available when short-term debt is unavailable or extremely costly. In general, the net cost of such funding (equal to the difference between what the invested funds could earn if invested elsewhere and actual earnings) is also less than the cost of short-term borrowing.

Using the Worksheet

Microsoft Cash Plan offers two methods for entering amounts for nonoperating cash flows. These methods are summarized in the following table.

Table 8
Methods for Entering Amounts: Worksheet 4*

	Interval	Base Amount
Nonoperating cash inflows	x	x
Nonoperating cash outflows	x	x

* Each method is outlined in the following sections.

Methods for Entering Amounts

Whenever there is a choice of calculation methods, you must specify your choice by going through the worksheet questioning sequence. If you want to choose a different calculation method, you must go back through the questioning sequence. If you want to change the data related to the method chosen, you may go directly to the worksheet itself.

Interval by Interval

The amount of any nonoperating cash flow may be specified individually for each interval in the budget period. If this calculation method is selected, you must specify the amount of the cash inflow or cash outflow individually for each budget interval.

For example, suppose dividends received from investments are expected to be \$5,000 per month during each interval of the budget period. In this case, you would specify dividend income of \$5,000 for each interval.

Base Amount With Constant Growth Rate

Some nonoperating cash flows may be expected to grow at a constant rate beginning at a base level at the beginning of the budget period. To use this calculation method, you must specify the base amount and the growth rate. For example, you may be expecting to receive evenly increasing amounts of rent revenue throughout the year. In that case, you might specify a base amount of \$20,000 for rent revenue, and a growth rate of 10% per year.

Timing of Cash Collections and Cash Payments

When using the Nonoperating Cash Flows worksheet, you specify the amount of cash inflow or cash outflow from nonoperating items at the time the money is received or spent. Therefore, collection patterns and payment patterns are not necessary.

Example Case

Joe Monda, the manager of Bay Company, expects the following categories of nonoperating cash flow:

Cash Collections

Dividends

Interest

Rent

Royalties

Sales of property, plant, and equipment

New financing

Cash Payments

Mortgage payments

Payments to owners (dividends)

Cash Collections

Bay Company has several types of investment income. This includes \$12,000 in dividends on a quarterly basis and fixed monthly interest revenues, rent on a building, and royalties from another fishing reel manufacturer for the use of Bay Company's brand name. An old stamping machine is to be sold in June, at an estimated price of \$70,000.

Cash Payments

Bay Company makes monthly mortgage payments of \$30,000. Regular quarterly dividend payments are \$150,000 per quarter, payable in March and June. Joe is also planning to borrow \$300,000 in January and repay it in June, along with \$15,000 in interest.

Decision Analysis

Management is not convinced that the \$300,000 loan is really necessary. Joe decides to prepare a revised Nonoperating Cash Flows worksheet, eliminating the loan. The revised worksheet will show that without the loan, net nonoperating cash flows will be negative during most months.

Worksheet 5

Cash Budget

The Cash Budget worksheet summarizes anticipated cash collections and cash payments from all sources during the budget period. In the Cash Budget worksheet, cash collections from sales, cash payments for materials or merchandise, cash payments for operations, and nonoperating cash flows developed in worksheets 1 through 4 are finally together. In addition to the information from worksheets 1 through 4, income tax payments, desired cash balances, and resulting cash shortages and cash surpluses are also included for each interval.

Information You Will Need

Before you can use the Cash Budget worksheet, you must define worksheet format by using the Worksheet Format questioning sequence outlined in the preceding section, “Worksheet Format.”

In addition to the information copied from other worksheets, you must provide expected income tax payments and desired cash balances for each interval of the budget period.

Making Changes to the Worksheet

Changes to worksheet format (changes in the length of the budget period or budget intervals) should be made by going back through the Worksheet Format questioning sequence. Changes to data (the actual numbers on the worksheet) can be made by going directly to the worksheet itself.

Changes may be made to reflect new information or to analyze the effects of different sales policies or inventory purchasing policies, or to reflect alternative operating cost decisions or financing and investing decisions. You may examine the effects of such changes separately or together.

The Cash Budget worksheet summarizes the results of all of the previous worksheets. If you are copying the results of another worksheet, you must go back to that worksheet if you wish to change the result.

The following table summarizes the information you will need and tells how to make changes to the Cash Budget worksheet. The first time you use the worksheet, you must provide all of the required information by going through the Worksheet Format questioning sequence and the Cash Budget questioning sequence. Later on, you can change worksheet format by going back through the Worksheet Format questioning sequence again, or by going directly to the worksheet itself.

To make changes to the format of the Cash Budget worksheet, you have to go back through the Worksheet Format questioning sequence. To change the data, you can go to the Cash Budget questioning sequence, directly to the worksheet itself, or to the worksheet you copied the data from.

Table 9
How to Change Worksheet and Questioning Sequence Information

Required Information	Questioning Sequence			
	Worksheet Format	Cash Budget	Copied Worksheet	Worksheet *
Company name	x			
Worksheet report name	x			
Budget period	x			
Budget intervals	x			
Amounts and timing of				
Cash balance at start of budget period†		x		
Cash collections from sales†		x	x	
Cash payments for materials or merchandise†		x	x	
Cash payments for operations†		x	x	
Nonoperating cash flows†		x	x	
Income tax payments†		x		x
Desired ending cash balances†		x		x

* You can change data in this column by going directly to the worksheet.

† See “Methods for Entering Amounts” in this section.

How Cash Budget Information Is Used

The Cash Budget worksheet is the final worksheet in Microsoft Cash Plan. It combines the cash flow results of all of the previous worksheets with income tax payments and desired cash balances to determine the company's interval net cash surplus or shortage.

The following information flow diagram shows how information passes from one worksheet to another in Cash Plan. As you can see, information about worksheet format entered by using the Worksheet Format questioning sequence is used to format all worksheets. The Cash Budget worksheet summarizes the final results of all of the other worksheets.

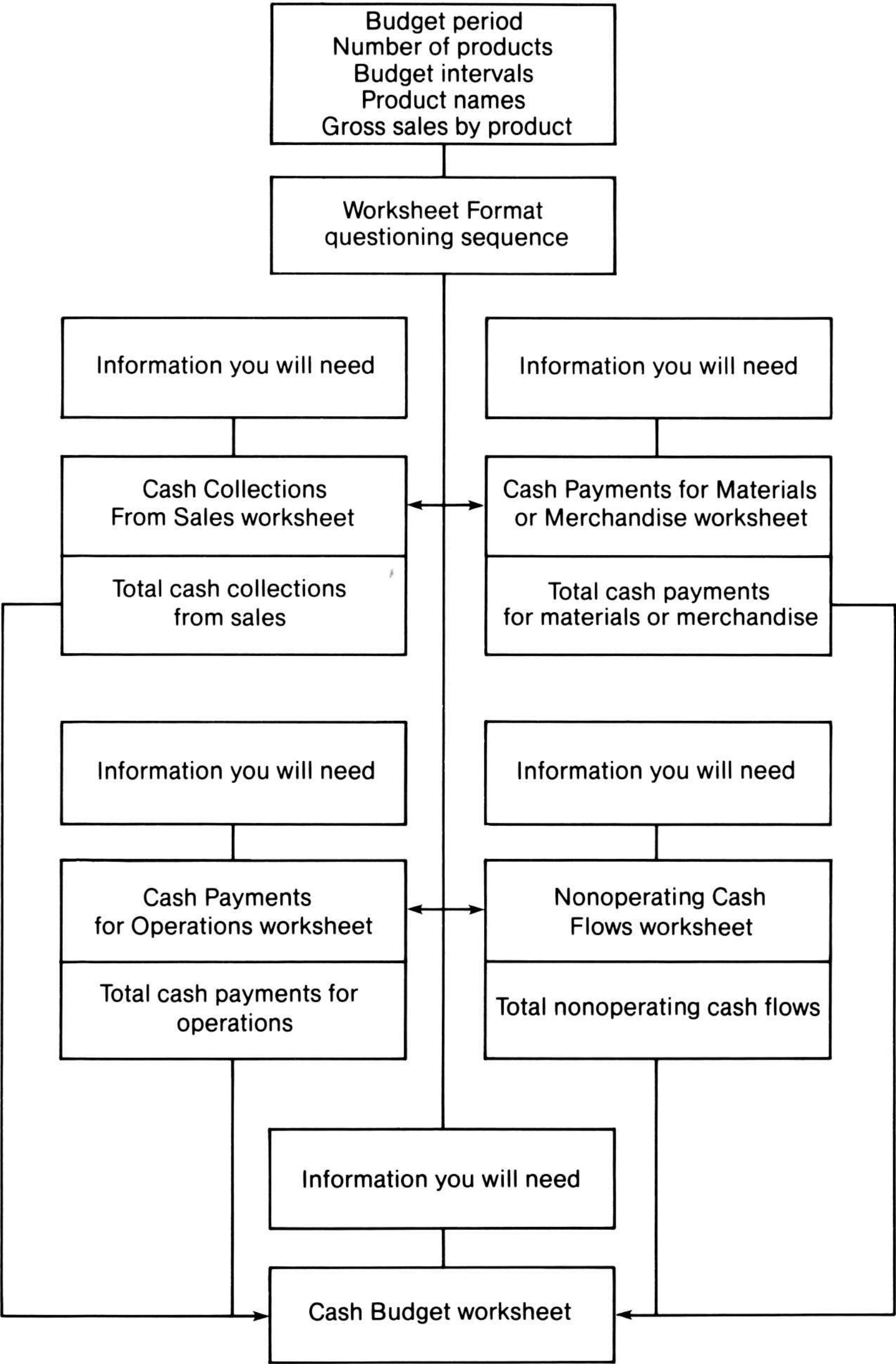


Figure 4. Information Flows

Microsoft Cash Plan

At this point, you should understand how:

To format your worksheet

To enter information

To copy information from another worksheet

To make changes to the worksheet

Information flows between the various worksheets

You're ready to prepare the Cash Budget worksheet.

Enter Program Name: cash

Cash Budgeting

In the long run, a company must be profitable, providing its owners with a return on their investment in the company. In the short run, the company must remain solvent so it will have enough cash to pay its bills. The purpose of cash budgeting is to help the manager avoid cash shortages and invest cash surpluses wisely.

The Cash Budget worksheet summarizes anticipated cash inflows and cash outflows from all sources during the budget period. The main cash inflow for most companies is cash collections from sales of goods or services. The Cash Collections From Sales worksheet summarizes these cash inflows. For wholesalers, retailers, and manufacturers, cash payments for materials or merchandise are the main cash outflows. The Cash Payments for Materials or Merchandise worksheet summarizes these cash outflows. Cash payments for operations are also significant, particularly for companies that sell services rather than goods. The Cash Payments for Operations worksheet presents expected cash flows related to routine operations. Nonoperating cash flows are other cash flows (not related to the company's day-to-day, routine operations) which may be significant. These cash flows are summarized in the Nonoperating Cash Flows worksheet.

Income Taxes

For most profitable companies, income tax payments are significant expenditures which must be planned for. In general, income tax expense depends on your company's taxable income. Taxable income differs from net income for accounting purposes, so it must be estimated separately. Be sure to consider current tax laws when estimating taxable income and income tax expense.

Income tax payments are usually made four times per year as required by federal law. A company using December 31 as the last day of its fiscal year must make quarterly tax payments in April, June, September, and December.

Payment of income tax expense is the only cash flow that remains to be entered into the cash budget. Tax payments are expected cash payments for federal and state income taxes during the budget period.

Desired Cash Balances

Finally, a company should plan to have some amount of cash on hand. Desired cash balances are the levels of cash you want to keep on hand to meet immediate cash needs. Although you probably expect cash receipts to occur throughout the month, it is a good idea to keep some amount of cash on hand in case your cash receipts are late. This way, you can be sure to be able to pay your own bills when they are due. Cash includes currency, cash in checking accounts, and investments of very short duration. Desired cash balances can be specified as a constant dollar amount for the entire budget period, as a different dollar amount for each budget interval. You may also specify your desired cash balance for each interval as a percentage of that interval's sales.

Cash Shortages

Profitable companies sometimes find themselves facing cash shortages when cash payments for materials or merchandise or for routine operations must be made before cash from sales is collected. Cash shortages may be seasonal and recurring, or they may be unexpected. They may be temporary, lasting only for an interval or two, or they may be chronic.

The Cash Budget worksheet can help the manager plan to avoid cash shortages by letting him predict the likely effects of various management decisions on the company's cash position. Depending on their nature and size, he may decide to adjust operating plans to avoid or reduce cash shortages, or he may decide to arrange short-term or long-term financing.

If your cash budget indicates that your company will face cash shortages during the budget period, you have two basic choices. You may increase projected cash collections or you may decrease projected cash payments.

Increasing Projected Cash Collections

One way to increase projected cash collections is to increase sales. If you can do this without loosening your credit policy, offering larger sales discounts, or waiving finance charges, then cash collections from sales will increase. However, it may be

impossible to increase sales without offering easy credit, bigger discounts, and free financing. Because the sales policy variables that affect sales also affect cash collections from sales, it is important to consider carefully the implications of any changes in sales policies.

Another way to increase projected cash collections is to increase selling prices. Once again, you must analyze this change along with other changes which may result to see the net effect on cash collections.

If you have excess productive capacity, you may decide to sell property, plant, or equipment to increase cash collections. Or you may decide to sell some financial assets.

Finally, you may decide to obtain new financing by issuing additional stock, bonds, or notes, or by obtaining a line of credit from your bank. A line of credit is similar to overdraft protection, and allows you to borrow money (up to a specified limit) as you need it and to repay it as you can afford to. Banks generally require that you keep a minimum balance on deposit with them for this privilege.

Decreasing Projected Cash Payments

Projected cash payments can be decreased in several ways. First, you might decide that the inventory levels used in your original cash budget are excessive. Lower inventory levels will require smaller or later inventory purchases.

Another way to decrease projected cash payments is by decreasing discretionary selling and administrative expenses. For example, you could cut back on profit sharing or reduce your advertising budget. Again, these alternatives may have other negative effects (such as decreased sales) which must also be considered. For example, a cutback in profit sharing may affect the effort your salesmen put forth if they feel that their incentive has disappeared. Or, without adequate advertising, potential buyers may be unaware of your product or unwilling to buy it.

You may also reduce projected cash payments by cutting back on dividends. Or you might defer asset replacement plans or expansion plans.

Cash Surpluses

If your cash budget indicates that your company will have cash surpluses during the budget period, you must decide how to use these funds most profitably. You may decide to invest in short-term financial assets if the surplus is temporary or relatively small. If the projected surplus is long-term and large, you might consider reducing long-term debt, purchasing additional productive assets, purchasing long-term investments, or increasing dividends to shareholders.

Revising and Updating Your Cash Budget

Once you have decided how to deal with your cash shortages and cash surpluses, you should go back and change each worksheet that is affected to reflect new sales forecasts, inventory levels, operating expenses, etc. The revised worksheets will show new cash flow figures, and the cash budget will summarize the net effects on your cash position. You may want to prepare several revisions in order to “fine tune” your cash budget.

It is also useful to revise or update your company’s cash budget on a periodic basis. For example, you might decide to update your cash budget at the end of each quarter. A current cash budget will help you remain in control of your cash situation and allow you to anticipate and avoid cash shortages, or to make plans for the best use of cash surpluses. As time goes by, you should compare actual results to your budget. This will help you gain a better understanding of your company’s cash flows, and it will also help you prepare more accurate cash budgets in the future.

A cash budget can also be used to forecast the cash flow effects of possible changes in company policies, or in competitive or general economic conditions. By considering many possible alternatives, you may be able to avoid unpleasant or disastrous situations when conditions change.

Using the Worksheet

Microsoft Cash Plan offers you a selection of methods for entering amounts for most cash inflows and cash outflows. Calculation methods you may choose are summarized in the following table.

Table 10
Methods for Entering Amounts: Worksheet 5*

	Single Value	Interval	Base Amount	Other Worksheet
Cash balance at start of budget period	x			
Cash collections from sales		x	x	x
Cash payments for materials or merchandise		x	x	x
Cash payments for operations		x	x	x
Nonoperating cash flows		x	x	x
Income tax payments		x	x	
Desired ending cash balances		x	x	

* Each method is outlined in the following sections.

Methods for Entering Amounts

Whenever there is a choice of calculation methods, you must specify your choice by going through the worksheet questioning sequence. If you want to choose a different calculation method, you must go back through the questioning sequence. If you want to change the data related to the method chosen, you may go directly to the worksheet itself.

Single Value

The amount of cash on hand at the beginning of the budget period must be specified as a single value. For example, you might expect to have a cash balance of \$7,500 at the start of the budget period.

Interval by Interval

The amount of cash desired at the end of an interval, and the amount of any cash flow on the Cash Budget worksheet, may be specified individually for each interval in the budget period. If this calculation method is selected, you must specify the amount individually for each budget interval.

Base Amount With Constant Growth Rate

The amount of cash desired at the end of an interval, and the amount of any cash flow on the worksheet, may be expected to grow at a constant rate beginning at a base level at the start of the budget period. To use this calculation method, you must specify the base amount and the growth rate. For example, you may expect cash payments for operations to grow at a rate of 15% per year from a base amount of \$75,000 at the beginning of the budget period. In this case, you should specify a base amount of \$75,000 for cash payments for operations and a growth rate of 15%.

Copy From Another Worksheet

You may copy cash collections from sales, cash payments for materials or merchandise, cash payments for operations, and nonoperating cash flows from other worksheets. To do this, you must specify the name of the worksheet you are copying from.

Timing of Cash Collections and Cash Payments

When using the Cash Budget worksheet, you must specify the amount of cash inflow or cash outflow from each item at the time the money is received or spent. Therefore, information about collection patterns and payment patterns are not necessary here.

Example Case

Bay Company has projected cash collections from sales, cash payments for materials or merchandise, cash payments for operations, and nonoperating cash flows using worksheets 1 through 4 of Microsoft Cash Plan. Now Joe Monda, the manager, is ready to summarize these results in the Cash Budget worksheet.

Joe expects quarterly income tax payments of \$100,000 to be made in April and June. He also thinks Bay Company should maintain a cash balance of \$225,000 in the intervals when cash flows related to production and sales are highest (May and June), and \$200,000 during the rest of the year.

The Cash Budget worksheet combines the results of worksheets 1 through 4 with the above information about income tax payments and desired cash balances. The resulting Cash Budget worksheet shows that Bay Company will have cash shortages (i.e., projected cash payments will exceed cash collections) in April and June. In the other intervals, cash collections are expected to exceed cash payments. On a cumulative basis, Bay Company shows a cash surplus for each interval and for the year as a whole.

Bay Company can handle its projected cash surpluses and shortages in several ways. One option is to deposit interval surpluses in a savings account and withdraw cash as it is needed to cover the expected interval shortages in April, June, September, and December. Bay Company could also reduce the short-term loan projected for March from \$300,000 to a lower amount. Alternatively, Bay Company could use the surplus to pay larger dividends to shareholders. Or Bay Company could pay off part of its mortgage in advance, reducing the amounts due in future years.

Finally, the cash surplus could be used to expand the business. If dividends were also reduced, Bay Company would have enough cash to introduce a new line of scuba gear which could be marketed to the company's current customers.

Decision Analysis

In developing the previous worksheets, Joe considered the effects of various changes in economic conditions and company policies. Changes he considered were as follows:

Worksheet 1: Cash Collections From Sales

Projected sales levels were decreased by 5%.

Sales discount for early payment was increased from 2% to 3%.

Worksheet 2: Cash Payments for Materials or Merchandise

Projected cost of sheet steel was increased from 6% to 8% of reel selling price.

Finished goods and merchandise inventories levels were increased from 100% of current interval's sales plus 50% of next interval's sales, to 100% of current interval's sales and next interval's sales.

Worksheet 3: Cash Payments for Operations

Projected direct labor costs were increased from 20% to 25% of sales.

Worksheet 4: Nonoperating Cash Flows

A short-term loan of \$300,000 was eliminated.

Each of these changes was carried through to the Cash Budget worksheet to determine the effect on the company's cash position for each interval during the budget period.

Joe presents Cash Plan results and his analysis of available options to the Board of Directors. They are very pleased with the new information available to them. They are also excited about the possibility of adding scuba gear to Bay Company's product line. They ask Joe to determine the effect on the company's cash position of converting the rental building to a new factory for manufacturing scuba gear.

Joe estimates that conversion of the building would require monthly cash payments of \$50,000 to contractors for one year. The first payment on necessary new machinery would be \$60,000 in December. Investment tax credit on the new machinery would reduce income tax payments by \$16,500 per quarter. Since the building would no longer be rented, rental income would be eliminated, and income taxes would decrease by \$1,200 per quarter. Using these estimated cash flows, Joe revised the Cash Budget worksheet. The results show that the company would have cash shortages in the same months as before, but cumulative surpluses for the budget period would be much smaller.

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Name _____

Street _____

City _____ State _____ Zip _____

Phone _____ Date _____

Instructions

Use this form to report software bugs, documentation errors, or suggested enhancements. Mail the form to Microsoft.

Category

_____ Software Problem

_____ Software Enhancement

_____ Documentation Problem
(Document # _____)

_____ Other

Software Description

Microsoft Product _____

Rev. _____ Registration # _____

Operating System _____

Rev. _____ Supplier _____

Other Software Used _____

Rev. _____ Supplier _____

Hardware Description

Manufacturer _____ **CPU** _____ **Memory** _____ KB

Disk Size _____" **Density:** _____ **Sides:** _____

Single _____ Single _____

Double _____ Double _____

Peripherals _____

Problem Description

Describe the problem. (Also describe how to reproduce it, and your diagnosis and suggested correction.) Attach a listing if available.

Microsoft Use Only

Tech Support _____

Date Received _____

Routing Code _____

Date Resolved _____

Report Number _____

Action Taken:

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Please use this card when ordering a replacement for a defective Microsoft product. To validate a replacement request for a product under limited warranty, include proof of purchase or indicate that your product registration card is on file at Microsoft. To validate a request for out-of-warranty replacement, your product must be registered with Microsoft.

This replacement order card must be accompanied by the defective product. If the product limited warranty has expired, please include payment for the replacement.

Name _____

Company _____

Address _____

City _____

State _____ Zip _____ Country _____

Phone (____) _____ TELEX _____

Name of product as it appears on package _____

Date of purchase: Month _____ Day _____ Year _____

If warranty has expired, I enclose payment in the amount of \$ _____

☐ Check or money order ☐ VISA ☐ MasterCard

Bank card number _____ Expiration date _____

Authorized signature _____

Return Authorization Number* _____

Reason for return _____

Mail to: Customer Service Department
Microsoft Manufacturing
13221 S.E. 26th Street
Bellevue, WA 98004

*Your RA number must be written on the outside of the product package you are returning to Microsoft. For details, see the "Product Replacement Plan" on opposite side.

PRODUCT REPLACEMENT PLAN

Microsoft will replace a product diskette or hardware component free of charge if it proves defective during the warranty period. (See the License Agreement for more information on the warranty period.) To receive warranty replacement, you must provide proof of purchase or have registered your product with Microsoft.

After the limited warranty has expired and if your product registration card is on file at Microsoft, we will replace a defective diskette for a nominal cost. You must return the product registration card to take advantage of this service.

If you have a defective diskette or hardware component, follow these procedures to obtain a replacement:

1. Obtain a Return Authorization (RA) number from Microsoft.

To obtain an RA number, call the Customer Service Department at Microsoft, (206) 828-8088. Be ready to furnish the product name, its registration number, and your reason for returning it.

2. Complete the product replacement card attached to this booklet and request either warranty or out-of-warranty replacement.
3. Mail the replacement card along with the product to Microsoft's Customer Service Department. The address is listed on the replacement card.
4. Include your payment if the limited warranty has expired.

